UGUST, 1927

Vol. XXXVII No. 2
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Vol. XXXVII
No. 2

The American City

AUGUST
1927

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COMMENTS ON MUNICIPAL PROBLEMS
By Calvin Coolidge

Extracts from the President's Public Addresses During the Last Three Years, Relating to Local and Federal Activities for Civic and Social Welfare

Parks and Playgrounds

The present century has seen a tremendously vital development in the opening-up of small parks in congested centers, the laying-out of playgrounds for children, the building of community centers to minister to the normal social life of the young folks, and the establishment of athletic and recreation fields for the general public. The wholesome, strengthening, refining influences which all of these have had upon American life is beyond estimation. It is all an important part of the dominant purpose of this Republic to raise up a people who are fit to rule.

The immediate aim of these efforts is to improve the public health. It is realized that sound bodies mean an increased industrial efficiency. But the purpose goes beyond this to the cleansing and clarifying of the mind, raising the whole standard of life. It is becoming better and better understood that a sound body, an informed mind, normal social contacts, and that contentment which comes from opportunity for a broader self-expression, are all vital factors in the preservation of our national existence.

—From address at the dedication of the Memorial Recreation Park of the North Township of Lake County, at Hammond, Ind., June 14, 1927.

The Traffic Problem and City Development

I do not presume to judge between those investigators who conclude that the cities must inevitably go on with their rapid rate of growth, and those others who tell us that transportation and industrial program must be made to counteract this tendency and bring diffusion of the population masses. But it must be apparent that, whichever view is correct, many and difficult and costly readjustments must be made. There is need for concerted, fundamental and courageous consideration of all the questions involved. They reach a hundred times deeper than the mere superficial problem of getting streams of motor cars moved through city streets. They have to do with the elementals of social organization. They concern vital phases of community welfare and progress. The physical configuration of our cities, the direction of the mighty currents of the nation's commerce, the continent-wide distribution of population and industry—these are all included among the problems with which you gentlemen are dealing. I cannot too earnestly urge you to take the broadest and most inclusive view of them. You will be in no danger of overemphasizing them.

Some recent studies by engineers and sociologists have led to doubts whether the superior efficiency of the very great cities as business, industrial and cultural centers, can be taken altogether for granted. They have advantages, but they also have disadvantages; and the disadvantages seem to be multiplying faster.

—From address before the Secretaries of 125 Automobile Clubs, May 1, 1925.

Public Works Construction and the Economic Cycle

The idea of utilizing construction, particularly of public works, as a stabilizing factor in the business and employment situation has long been a counsel of perfection among students of these problems. If in periods of great business activity the work of construction might be somewhat relaxed; and, if in periods of business depression and slack employment these works might be expanded to provide occupation for workers otherwise idle, the result would be a stabilization and equalization which would moderate the alternations of employment and unemployment. This in turn would tend to favorable modification of the economic cycle. It is something to be greatly desired, but its accomplishment is attended by much difficulty. . . . The first and easiest application of such a regulation is in connection with public works; the construction program which involves public buildings, highways, public utilities, and the like. Most forms of government construction could be handled in conformity to such a policy, once it was definitely established. Certainly, in time of depression government can start building. This applies not only to the construction activities of the Federal Government, but to those of states, counties and cities.

—From address before the Associated General Contractors of America, January 12, 1925.

Amelioration of Race Prejudice

The social well-being of our country requires our constant effort for the amelioration of race prejudice and the extension to all elements of equal opportunity and equal protection under the laws which are guaranteed by the Constitution. The Federal Government especially is charged with this obligation in behalf of the colored people of the nation. Not only their remarkable progress, their devotion and their loyalty, but our duty to ourselves under our claim that we are an enlightened people, requires us to use all our power to protect them from the crime of lynching. Although violence of this kind has very much decreased, while any of it remains we cannot justify neglecting to make every effort to eradicate it by law.

The education of the colored race under Government encouragement is proceeding successfully and ought to have continuing support. An increasing need exists for properly educated and trained medical skill to be devoted to the service of this race.

—From the President's Annual Message to Congress, 1926.

Street and Highway Safety

The increasing demands upon our highways from a growing population, the development of new uses, the imposition of modes of transportation not contemplated when they were created, have brought about congestion, confusion and conflict until the yearly toll of traffic accidents has reached an appalling total. If the death and disaster that now fall upon innocent people through the year and over our country as a whole were concentrated into one calamity, we would shudder at the tremendous catastrophe. The loss is no less disastrous because diffused in time and space. The evil you are combating is so widespread as to be of national concern, and we do well to look at it with a country-wide vision.

—From address before the National Conference on Street and Highway Safety, December 16, 1924.

The Capital City

We are embarking on an ambitious building program for the city of Washington. . . . This program should represent the best that exists in the art and science of architecture. Into these structures which must be considered as of a permanent nature ought to go the aspirations of the Nation, its ideals expressed in forms of beauty. If our country wishes to compete with others, let it not be in the support of armaments, but in the making of a beautiful capital city. Let it express the soul of America. Whenever an American is at the seat of his government, however traveled and cultured he may be, he ought to find a city of stately proportion, symmetrically laid out and adorned with the best that there is in architecture, which would arouse his imagination and stir his patriotic pride.

—From Message to Congress at beginning of session, December 7, 1926.

City Planning Legislation in 1927 Based on Standard State City Planning Enabling Act of Department of Commerce

THE Standard State City Planning Enabling Act, prepared by the Advisory Committee on City Planning and Zoning of the U. S. Department of Commerce, the drafting of which was mentioned in this magazine last January,* and which was issued in preliminary form in March, has been used in drafting planning laws enacted by the Legislatures of California, Maryland and Pennsylvania. For the following analysis of these new laws, THE AMERICAN CITY is indebted to John M. Gries, Chief of the Division of Building and Housing of the Department of Commerce.

The California act (Senate Bill 585) follows much of the outline and phraseology of the Standard Act, including the provisions for regional planning. In addition to cities, any county, or city and county which has the authority to lay out, adopt and establish streets, parks or playgrounds may create by ordinance a planning commission.

The Maryland act provides for a planning commission for the region bordering the District of Columbia and is framed with a view to the peculiar local conditions prevailing there, where parts of two counties, mainly unincorporated territory, lie within the suburban zone of Washington, D. C. The commission, which has already been appointed and organized, is given general planning powers, and control over platting, as in the Standard Act, and, in the absence of any other body embracing the same territory, is also granted administrative authority to acquire park and boulevard property. A police power method for controlling building in the bed of mapped streets, is included in the act. Provisions are made for enactment of zoning regulations by the respective county commissions, on recommendation of the planning commission.

The Pennsylvania act, which applies to Pittsburgh, follows many of the provisions of the Standard Act in detail regarding the organization and general powers of the planning commission, control over platting, and control of building in the bed of mapped streets by the eminent domain (Massachusetts) method. Platting control, however, is confined to the city limits and does not extend beyond, presumably in view of the special type of organization and powers of minor political subdivisions in Pennsylvania, and the projects under way in Allegheny County relating to regional planning and control.

The state of Texas at its 1927 regular session adopted the Standard State Zoning Enabling Act of the Department of Commerce.† Several other laws were passed at that session related to planning, but none of them was a general planning enabling act or made use of the Standard Planning Act. Chapter 231 automatically gives to cities with 25,000 inhabitants or more, according to the census of 1920, control over platting within their boundaries and a belt of five miles beyond their boundaries. Other laws provide for establishment of building lines and assessment for parks and street widening.

* See "A Unique Legislative Opportunity" in THE AMERICAN CITY for January, 1927, page 1.

† The Department of Commerce records shows that 28 states have used the Standard State Zoning Enabling Act wholly or in large part in drafting their zoning laws.

A Prayer for Those in Government

By Glenn Frank

President, The University of Wisconsin

¶ Almighty God, Lord of all Governments, help us to realize the sanctity of politics.

¶ Help us to know that the call to office is nothing less than a call to cooperation with Thee in the wise direction of life in this commonwealth.

¶ Give us the insight and grant us the power to lift this business of government into an adventure that we may with reverence call the Politics of God, because by it we shall seek to fashion the life of this commonwealth in the likeness of that City of God which has been the dream of saints and seers for unnumbered centuries.

¶ Save us from the sins to which we shall be subtly tempted as the calls of parties and the cries of interest beat upon this seat of government.

¶ Save us from thinking about the next election when we should be thinking about the next generation.

¶ Save us from dealing in personalities when we should be dealing in principles.

¶ Save us from thinking too much about the vote of majorities when we should be thinking about the virtue of measures.

¶ Save us, in crucial hours of debate, from saying the things that will take when we should be saying the things that are true.

¶ Save us from indulging in catch-words when we should be searching for facts.

¶ Save us from making party an end in itself when we should be making it a means to an end.

¶ We do not ask mere protection from these temptations that will surround us in these legislative halls; we ask also for an ever finer insight into the meaning of government that we may be better servants of the men and women who have committed the government of this commonwealth into our hands.

¶ Help us to realize that the unborn are part of our constituency although they have no vote at the polls.

¶ May we have greater reverence for the truth than for the past.

¶ Help us to make party our servant rather than our master.

¶ May we know that it profits us nothing to win elections if we lose our courage.

¶ Help us to be independent alike of tyrannical majorities and tirading minorities when the truth abides in neither.

¶ May sincerity inspire our motives and science inform our methods.

¶ Help us to serve the crowd without flattering it and believe in it without bowing to its idolatries.

¶ Almighty God, Lord of all Governments, to whom all hearts are open, and from whom no secrets are hid, may the words of our mouths, the meditations of our hearts, and the intent of our measures be acceptable in Thy sight.

¶ May we come with clear minds, clean hands, and courageous hearts to the sacrament of public service.

¶ May we be worthy of the high calling of government. Amen.

Written for the 1927 Session of the Wisconsin Senate

CHILDREN'S PLAYGROUND AND TERRACE GREEN, ST. FRANCIS WOOD
Developed at San Francisco by the Mason-McDuffie Co.

Subdividing for Play

Realtors' Growing Practice of Setting Aside Park and Playground Space in New Developments Insures Cities' Recreation Future

By M. Travis Wood

FAILURE to reserve play space—that costly mistake of the past in city building—will be eliminated in the future not only by the forward-looking systems of city planning but by the voluntary efforts of realtors, a survey recently conducted by the Playground and Recreation Association of America indicates. The study showed growing attention to the problem of providing permanent play space by real estate companies throughout the country.

The subdivision park or playground has proved a sound business proposition. It attracts home-seekers, yet need not cause financial loss to the realtor, as the cost of the playground is returned by enhanced prices or by actual distribution of the sum among the individual building lots.

These advantages to the realtor, as well as the more obvious advantages to home-seekers and cities, of such planning for recreation, are being stressed in an educational program just launched by the P. R. A. A. and to be continued for a year or more. Local recreation departments, THE AMERICAN CITY, the National Safety Council, the National Automobile Chamber of Commerce, the National Congress of Parents and Teachers, and more than 250 real estate companies, are among the organizations cooperating.

The program has a twofold plan: first, through a special representative who works with state and local real estate groups, and through articles in real estate publications, to acquaint realtors with the business value of providing for public play; second, through magazine and newspaper publicity to inform the general public of the desirability of buying home sites in subdivisions which make adequate provision for the recreation of their residents, to the end that home-seekers will expect and demand a playground in their neighborhood just as they now demand a school or a water-supply. An important part of the program is to bring together real estate men, recreation departments and city planners.

Child safety will be one of the main objectives. It has been found that more children are killed and injured while playing in the streets in the residential districts than in the more thickly trafficked streets. Play space within

every block becomes more and more essential to the safety of small children.

Ten "Articles of Belief"

The ten "real estate fundamentals" prepared by the P. R. A. A. in consultation with various authorities on this subject, have already been signed and approved by more than 500 officers of real estate boards and associations. "These certainly are my sentiments," scribbled one busy real estate man on the statement he returned. Another wrote, "I believe this is a subject which will meet a hearty response from realtors and all thinking people. Your organization is doing a splendid work in presenting these facts to the people."

The fundamentals are as follows:

1. Real estate leaders have done and are doing much to build homes as well as houses for the people of America. They are keenly alive to anything that makes these homes better or more attractive.

2. It is evident that the children and the young people in the homes of America must have places nearby for outdoor life and games.

3. Because many indiviuals are lacking in foresight and because it is difficult for any single individual to plan for play spaces except in cooperation with others, real estate leaders have opportunity to save individuals and families from their own thoughtlessness and make it easy for them to live in a community where there are neighborhood open spaces for play.

4. The increase in automobiles using the public streets makes the streets increasingly dangerous for the play of children and makes it increasingly necessary to save certain open spaces for play.

5. The built-up portions of cities at very considerable expense have been securing play space. It is the part of civic economy to have such space saved before congestion has made the securing of land for the public difficult and costly.

6. City real estate planning should make our cities of the future better places in which to bring up children, and this means the provision for fairly adequate play spaces for the future.

7. Real estate subdivisions for residence purposes which put aside a certain per cent of the land for recreation uses are more attractive to possible purchasers.

8. The more ready sale of lots in subdivisions where part of the land is dedicated to public use should far more than repay the subdivider for the cost of the small portion set aside for common recreation use.

9. Real estate men should look with favor upon plans to set aside for recreation purposes a reasonable per cent of the area of all future subdivisions.

10. Upon real estate men more than upon any other leaders depends the extent to which the growing parts of our cities shall be real homes for the men, women and children living in them.

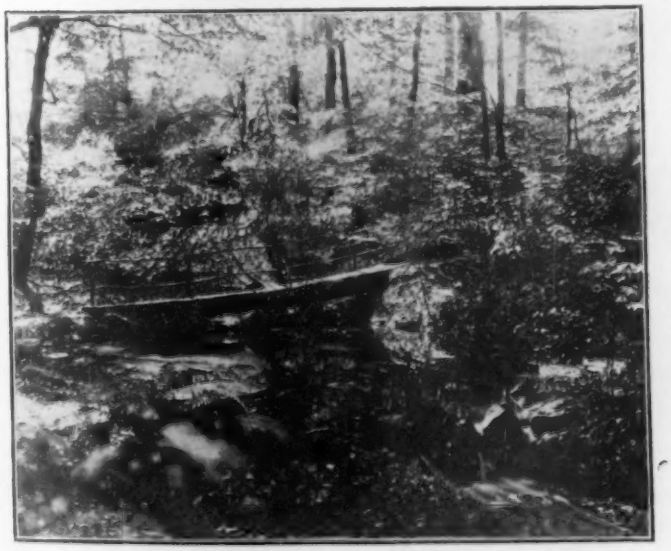
Some of the subdivisions reporting to the P. R. A. A. offer interesting and practical suggestions as to methods of reserving recreation space in perpetuity. These developments range all the way from entire new cities to a block of garden tenements.

Play Space in New Towns

Recreation played an important part in the planning of Longview, Wash., the new industrial city of the Pacific Northwest, which is being built from the ground up by the Long-Bell Lumber Co. In less than four years the city has grown from nothing to more than 12,000 people. It will probably have, eventually, a population of 50,000 or more.

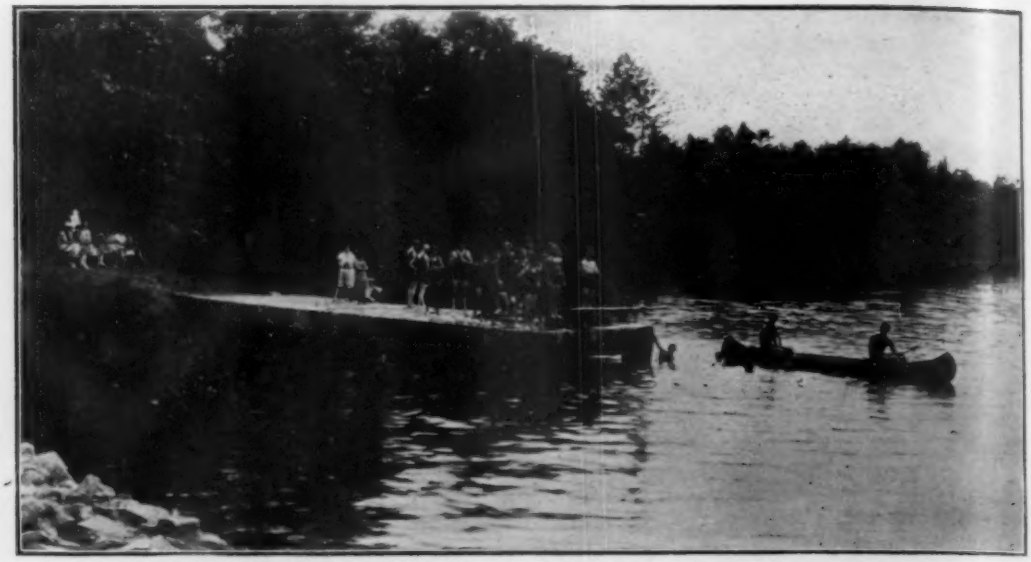
The recreation spaces set aside are three children's playgrounds, seven tennis courts, a nine-hole golf course, a six-acre landscaped park, and a chain of five lakes with attractive inlets and islands. Indoor facilities are provided by a community Y. M. C. A., a library, and school centers. Three-and-a-half miles of paved boulevards border the lake. One of the playgrounds, near a school, is very extensive, offering track, volley-ball and baseball as well as the usual playground facilities. A high school, now under construction, is to have a large campus with a playground and other recreation facilities.

Mariemont, the village lying

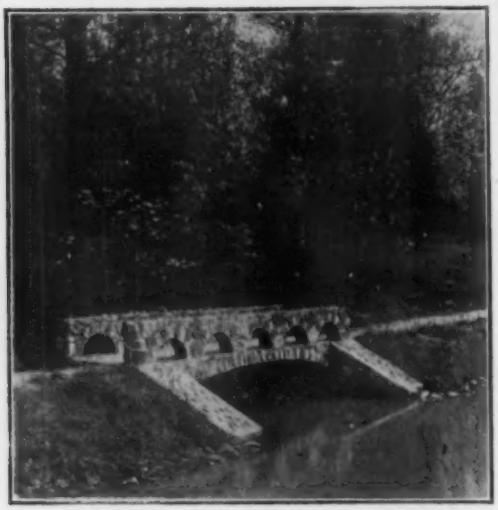


NATURAL BEAUTY HAS BEEN LEFT UNSPOILED IN THIS WOODLAND RETREAT

Part of the main park of 5½ acres reserved by Russell Gardens, Inc., at Great Neck, L. I.



READY FOR A SWIM AT HAMILTON LAKES ADDITION, GREENSBORO, N. C.
A development by A. M. Scales Co.



STONE BRIDGE AND WOODS IN THE HAMILTON LAKES ADDITION
In the 1,550 acres of this development, 400 are devoted to recreation spaces

just outside the boundary of Cincinnati, though sponsored by Mrs. Mary M. Emery, one of the city's philanthropists, is strictly a business enterprise, to be handled as any other real estate development, but upon a limited dividend basis. John Nolen, of Cambridge, Mass., who planned the village, set aside 51 acres out of the total of 420 to be used for public recreation for all time. Beautiful parks, playgrounds, tracts of woodland and village greens have been provided.

"These tracts," says the Mariemont prospectus, "were acquired for the purpose, treated as part of the development, with cheap land costs, so that the company looks upon them as 'publicity expense' while incidentally they add value to the neighborhoods in which they lie."

A boat-house on the lagoon, a field house near two baseball grounds, and a recreation building with a stadium and a swimming pool will also be provided for Mariemont residents. Allotment gardens and small farms will give even those who dwell in flats an opportunity to raise crops and flowers.*

"It Pays," Say Realtors West and East

The St. Francis Wood Subdivision, at San Francisco, one of the finest residential properties in the United States, comprises 125 acres and will have between 1,500 and 2,000 inhabitants—salaried, business and professional people. Between eight and ten per cent of the area has been set aside for parks and playgrounds, which include two double tennis courts, an enclosed lawn and garden for the little tots, and a four-acre playground for larger youngsters.

"We are confident," wrote Duncan McDuffie, President of the Mason-McDuffie Co., which is developing St. Francis Wood, "that the value of the land devoted to these purposes was fully recovered through the creation of higher values in the home sites of St. Francis Wood." All the park and playground areas

* For articles in THE AMERICAN CITY on Longview and Mariemont, respectively, see "A Small City Whose Growth Is Aided and Controlled by Plan," August, 1926, page 186; and "Mariemont, America's Demonstration Town," October, 1922, page 309; and "The Public Works of the New Model Town, Mariemont, Ohio," March, 1924, page 247.

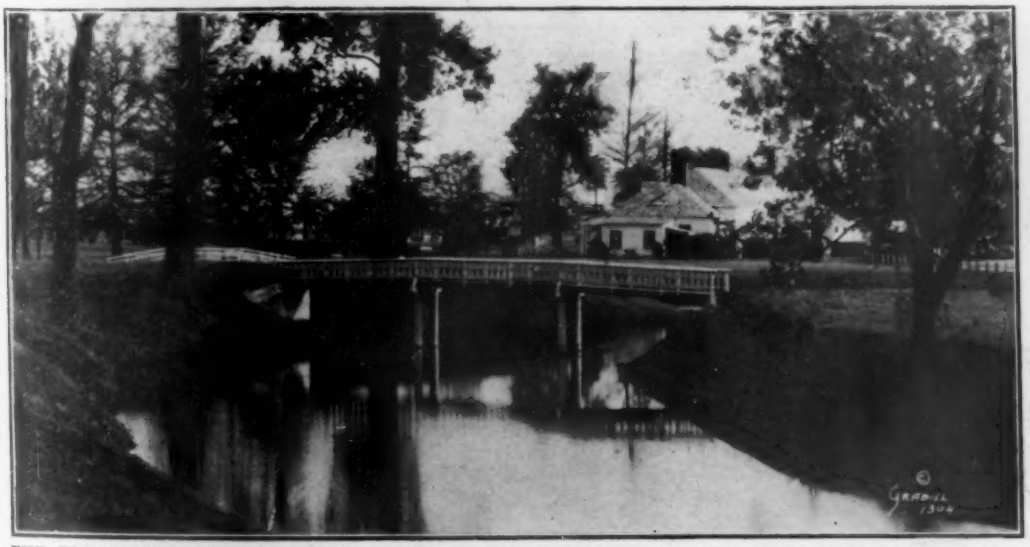
have been deeded to a Homes Association.

The Harmon National Real Estate Corporation has set aside parts of all its recent subdivisions for parks and playgrounds. In this corporation's new Nassau Shores development on Long Island, a tract valued at about one million dollars, in the very heart of the subdivision, has been laid out as a nine-hole golf course. A hundred-and-fifty-thousand-dollar golf and yacht club is nearing completion. When one buys a lot in Nassau Shores, he has a permanent membership in the golf club, also access to a strip of beach which affords excellent bathing. A sizable area has been set aside for a children's playground.

"The recreational features of the development have been the chief selling point," states W. Burke Harmon, President. "Our faith that they would be is sustained in the fact that we have sold more lots in this subdivision than the rest of the real estate companies in this section put together." The area was put on sale in May, 1926. Seventy-five per cent is now sold, though the choicest lots have not yet been put on the market.

Sunnymede, at South Bend, Ind., is a subdivision of 100 acres which will have about 1,500 inhabitants when fully developed. Here

BETTY-VIRGINIA PARK HAS BEEN DEEDED OUTRIGHT TO THE TOWN OF SOUTH HIGHLANDS, LA.



THE BROADMOOR GOLF CLUB, 135 ACRES, IN THE BROADMOOR SUBDIVSION, SOUTH HIGHLANDS

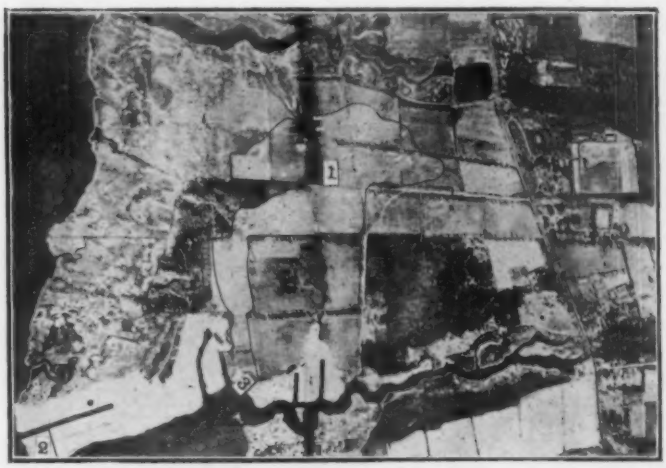
These views show portions of two of the undertakings of A. C. Steere & Co., Shreveport, La.

ALL THE LAND SHOWN IN THIS VIEW IS PARK LAND ALONG GRANVIA LA COSTA (THE COAST HIGHWAY) NEAR THE NORTH ENTRANCE TO PALOS VERDES ESTATES, CALIF.

an area 50 feet x 256 feet in the center of a wooded block has been set aside for family picnics and children's play apparatus. Another recreation space, slightly more than an acre, is for the benefit of adults and will provide tennis, bowling, clock golf and other features. In addition to these two centrally located areas, two small parks are provided.

The realtors of Greensboro, N. C., have united in an effort to provide adequately for recreation as they promote the city's growth. In eighteen subdivisions, totaling 8,264 acres, they have set aside for recreation an average of 14.6 per cent. In thirteen of these subdivisions 10 per cent or more has been reserved for play; in the remaining five, between five and ten per cent.

Sunnyside, developed by the City Housing Corporation at Long Island City, is one of the outstanding experiments in providing play space in connection with apartment houses. Here, as described in THE AMERICAN CITY for February, 1927, each block has an inner court playground supplying space for small children to play and grownups to sit. The recreation facilities for older children and adults are contained in a three-acre park at one end of the subdivision. Bayonne Apartments, promoted by the Bayonne Housing Corporation, New Jersey, have devoted about 22.4 per cent of the entire development to areas for play and relaxation.



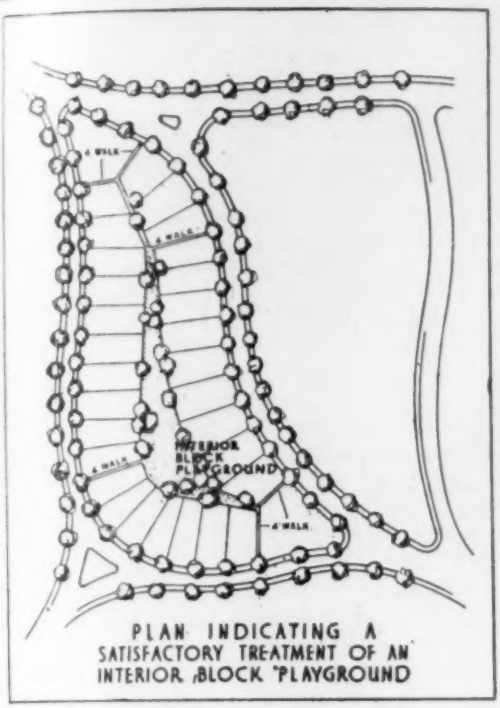
P & A Photo

AN AIRPLANE VIEW OF NASSAU SHORES, L. I.

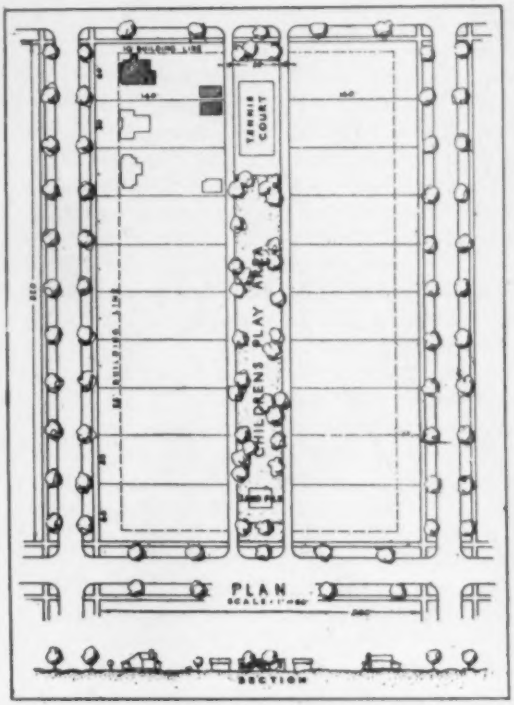
This is a Harmon National Real Estate Co. development. The center tract, outlined in black and numbered 1, is the 53-acre golf course, taken from the heart of this 550-acre development. The two-acre sandy beach, marked 2, is to be equipped and used as a children's playground. The site of the new $150,000 club house, just completed, is marked 3

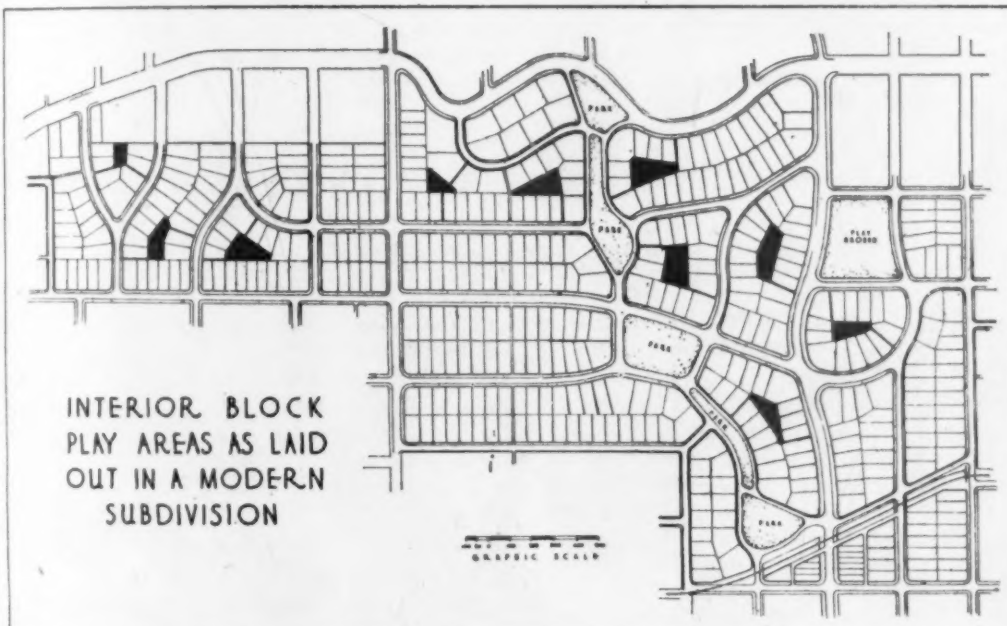
Cities Will Maintain Most Subdivision Playgrounds

The trend is toward municipal maintenance and supervision of recreation areas in new subdivisions. Of the total expense for these purposes reported to



PLAN INDICATING A SATISFACTORY TREATMENT OF AN INTERIOR BLOCK PLAYGROUND





INTERIOR BLOCK PLAY AREAS AS LAID OUT IN A MODERN SUBDIVISION

DIAGRAMS SHOWING METHODS OF CREATING INTERIOR BLOCK PLAYGROUNDS

CITY PLANNING & ZONING COMMISSION

ORLANDO FLORIDA

BARTHOLOMEW & ASSOCIATES
CITY PLAN AND LANDSCAPE ENGINEERS
SAINT LOUIS — MISSOURI

the P. R. A. A., approximately 50 per cent is provided from tax funds and 45 per cent from private sources, generally membership fees or special assessments paid by property owners. In a number of projects the private financing of the operation costs is a temporary arrangement. Ultimate maintenance and supervision by the municipality is frequently a condition on which a subdivider sets aside and deeds such areas in perpetuity to the city. Some subdivisions lie beyond city boundaries, and until they become a part of the city the latter will not ordinarily operate them.

To the Park Commission of Memphis, Tenn., 114 acres have been donated by H. W. Brennan, the subdivider of Red Acres, with the understanding that it is to be used for recreation purposes in perpetuity. This is 44.5 per cent of the total of 256 acres. An eighteen-hole golf course is among the recreation features.

The Recreation Department of Houston, Texas, has secured one of the most completely equipped playgrounds in the South through the developments of the Crain Ready-Cut House Co. in that city. The playground was sold to the city at a sum which represents a substantial contribution by the company. "Our playground has proved most satisfactory from the standpoint of material assistance in selling our property, and it is also greatly appreciated by the property owners," writes E. L. Crain, President.

The owners of Jerome Park Subdivision, Racine, Wis., have deeded about eight per cent of the development to the city with the provision that this land is to be used for parks and playgrounds, but that they maintain these recreation spaces for a period of ten years under the supervision of the local Park Board.

In pioneer America, open spaces were set aside in perpetuity by far-sighted city planners, among them William Penn in Philadelphia, General Oglethorpe in Savannah, Brigham Young in Salt Lake City and Major L'Enfant in Washington. This wise example was too generally forgotten during the ensuing period of materialism with its gigantic expansion of industry and rapid growth of cities, when "every man for himself" was the watchword. Now, without the compulsion of legislation, real estate operators are coming to see both the business and the civic values of planning for recreation. The city of tomorrow will not have to resort to condemnation proceedings and fabulous prices to obtain playground land, in view of this broadening cooperation between the realtor and the city planner.

Progress in the Development of Davis Islands

By Adolph G. Wulff

ONE of the most remarkable of the many recent real estate developments in Florida, Davis Islands, is situated in the geographical center of the city of Tampa.

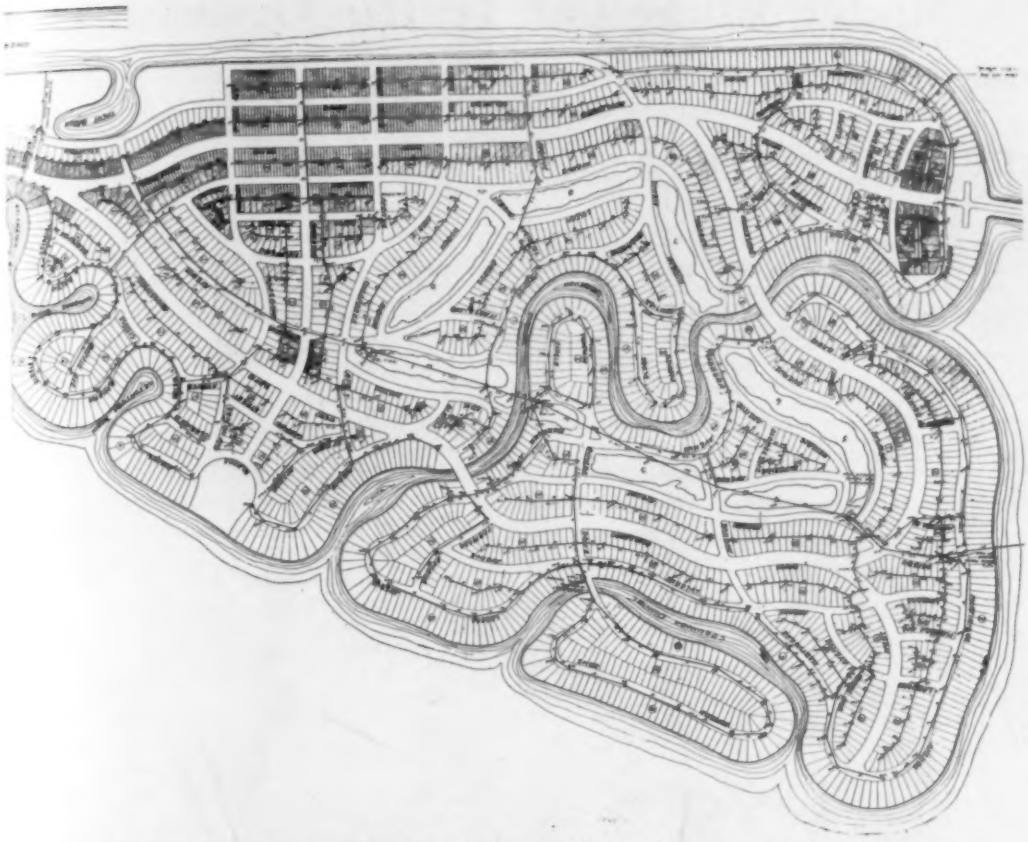
The project involves the reclaiming of an area of 900 acres from the bay where there were originally only 150 acres of islands, partly submerged at high tide. Although work was begun less than three years ago, it has progressed so rapidly that many dwellings, apartment houses, club-house and hotel are now occupied.

The new City Hospital of Tampa is being erected on the islands and will be surrounded by a park of 55 acres. Fourteen slips for yachts are already completed and in use at the yacht basin on the eastern side of the islands.

The engineers in their design of the streets were limited to a minimum grade of 0.15 per cent, and the low points in any street were limited to the elevation of +6.5 feet above mean low tide. The storm sewers were calculated to take care of a rainfall of not more than 1½ inches per hour. Sanitary sewers drain to four collecting wells from which the sewage is pumped by automatic, electrically driven centrifugal pumps in relays to the principal discharge pipe. This is a 24-inch cast-iron pipe that has its outlet 300 feet from the shore line.

The plan indicates a total of 3,500 good-sized lots, and the islands will eventually have a population of 25,000 people. When finished there will be 26 miles of streets, 30 miles of sanitary sewers, and 8 miles of storm sewers.

The original plan was prepared by G. F. Young & Company, engineers, of Tampa. The owners are "Davis Islands, Incorporated," and the development is under the executive management of Stone & Webster, Inc., of Boston and Tampa.



SANITARY SEWER SYSTEM OF A PORTION OF DAVIS ISLANDS, TAMPA, FLA.

Horizontal lines indicate the business district; diagonal lines, the apartment house and hotel district; cross-hatching, the apartment house, hotel and business district; blank spaces, the residential district

LOOKING NORTH ON ALBEMARLE AVENUE, DAVIS ISLANDS

Model Municipal Traffic Ordinance

Secretary Hoover Appoints Committee of Experts to Prepare Draft and to Suggest Plans for Reducing Confusion in Traffic Regulations

RESPONDING to a widespread demand for a model on which municipal traffic ordinances can be based, Herbert Hoover, Secretary of Commerce, as Chairman of the National Conference on Street and Highway Safety, has invited some seventy leading representatives of groups interested to serve on a committee to report on the subject. Those who have agreed to serve on the committee up to the date of the printing of this issue (July 25) are:

Harland Bartholomew, Harland Bartholomew & Associates, 317 No. Eleventh St., St. Louis, Mo.
Francis G. Blair, State Superintendent of Public Instruction, Springfield, Ill.
H. S. Braucher, Secretary, Playground and Recreation Association of America, 315 Fourth Avenue, New York.
Major Roy F. Britton, President, Automobile Club of Missouri, 626 Pine St., St. Louis, Mo.
Howard D. Brown, Detroit Automobile Club, 139 Bagley Ave., Detroit, Mich.
Harold S. Buttenheim, Editor, THE AMERICAN CITY, 443 Fourth Ave., New York.
Fred H. Caley, Secretary, Cleveland Automobile Club, Cleveland, Ohio.
A. A. Carroll, Superintendent of Police, Grand Rapids, Mich.
T. H. Carrow, Superintendent of Safety, Pennsylvania R.R., Philadelphia, Pa.
Edward Dana, General Manager, Boston Elevated Railway, 31 St. James Ave., Boston, Mass.
J. Allen Davis, Associate Counsel, Automobile Club of Southern California, Figueroa St. at Adams, Los Angeles, Calif.
L. A. De Blois, National Bureau of Casualty and Surety Underwriters, 120 W. 42nd St., New York.
George W. Elliott, Director, Department of Public Safety, Philadelphia, Pa.
P. L. Emerson, Yellow Truck & Coach Manufacturing Co., General Motors Building, Detroit, Mich.
D. C. Fenner, Manager, Public Works Department, Mack Trucks, Inc., 25 Broadway, New York.
H. B. Flowers, President, New Orleans Public Service, Inc., New Orleans, La.
Joseph A. Gerk, Chief of Police, St. Louis, Mo.
A. C. Godward, City Planning Engineer, Minneapolis, Minn.
Frank A. Goodwin, Registrar of Motor Vehicles, Boston, Mass.
Charles M. Hayes, President, Chicago Motor Club, Chicago, Ill.
S. R. Heller, Yellow Cab Co., Norfolk, Va.
Inspector George G. Henry, Chief Inspector of Police, Baltimore, Md.
Arthur M. Hill, Vice-President, Charleston Interurban Railroad Co., Charleston, W. Va.
Robert P. Hooper, President, Wm. E. Hooper & Sons, Co., Juniper and Cherry Sts., Philadelphia, Pa.
Philip D. Hoyt, First Deputy Commissioner, Police Department, New York.
John Ihlder, Manager, Civic Development Department, Chamber of Commerce of the United States, Washington, D. C.
Dr. A. N. Johnson, Dean, College of Engineering, University of Maryland, College Park, Md.
Alvan Macauley, President, Packard Motor Car Co., Detroit, Mich.
James L. Madden, Third Vice-President, Metropolitan Life Insurance Co., 1 Madison Ave., New York.
John L. McChord, Cleveland Automobile Club, Cleveland, Ohio.
Dr. Miller McClintock, Director, Albert Russel Erskine Bureau, Harvard University, Cambridge, Mass.
E. J. McIlraith, Staff Engineer, Chicago Surface Lines, Chicago, Ill.
William E. Metzger, 56 Longfellow Ave., Detroit, Mich.
A. E. Mittendorf, Secretary, Cincinnati Automobile Club, Cincinnati, Ohio.
C. E. Pettibone, Vice-President and Chief Engineer, American Mutual Liability Insurance Co., Boston, Mass.
W. B. Powell, Consulting Engineer, 45 Court St., Buffalo, N. Y.
John W. Reid, Commissioner, Department of Public Works, Detroit, Mich.
H. A. Rowe, Claims Attorney, Delaware, Lackawanna & Western R.R., 90 West St., New York.
Fred M. Rosseland, Secretary-Manager, Newark Safety Council, 562 Broad St., Newark, N. J.
B. W. Ruark, Automobile Equipment Association, Chicago, Ill.
A. H. Rudd, Chief Signal Engineer, Pennsylvania R.R., Philadelphia, Pa.
R. T. Senter, President, Philadelphia Rapid Transit Co., Philadelphia, Pa.
Mrs. John D. Sherman, President, General Federation of Women's Clubs, 1734 N Street, N. W., Washington, D. C.
Hawley S. Simpson, Traffic Engineer, County of Essex, Newark, N. J.
Hon. W. McKay Skillman, Judge, Recorder's Court, Detroit, Mich.
Ernest N. Smith, General Manager, American Automobile Association, Washington, D. C.
C. W. Stocks, Editor, Bus Transportation, 10th Ave. at 36th St., New York.
Hon. Robbins B. Stoeckel, Commissioner of Motor Vehicles, Hartford, Conn.
Lucius S. Storrs, Managing Director, American Electric Railway Association, 292 Madison Ave., New York.
F. L. Swetland, The Swetland Co., Cleveland, Ohio.
Arthur A. Thomas, Attorney, 902 Union Trust Building, Providence, R. I.
Percey E. Towne, California State Automobile Association, 150 Van Ness Ave., San Francisco, Calif.
W. J. Towne, Chief Engineer, Chicago & North Western Railway, Chicago, Ill.
C. A. Vane, General Manager, National Automobile Dealers Association, 60 E. 35th St., Chicago, Ill.
Sidney J. Williams, Director Public Safety Council, 108 E. Ohio St., Chicago, Ill.

William E. Metzger, of Detroit, is serving as chairman of the general committee. At a preliminary meeting held in Detroit on July 6, six main divisions of the work were decided upon, each in charge of a sub-committee, with chairmen and vice-chairmen as follows:

I. Vehicle Movement and Regulation
Dr. Miller McClintock, Chairman; Howard D. Brown, Vice-Chairman
II. Pedestrian Facilities and Regulation
James L. Madden, Chairman; C. W. Stocks, Vice-Chairman
III. Traffic Signs, Signals and Markings
W. B. Powell, Chairman; B. W. Ruark, Vice-Chairman
IV. Parking, Terminals, Garages, Loading Facilities and Street Obstructions
Robert P. Hooper, Chairman; F. L. Swetland, Vice-Chairman
V. Public Motor Vehicles, Railways, Street Cars and Emergency Vehicles
Chairman, undetermined; A. C. Godward, Vice-Chairman
VI. Traffic Organization and Enforcement
Sidney J. Williams, Chairman; George W. Elliott, Vice-Chairman.

It is expected that special study will be given to the question as to the extent to which exact or substantial uniformity in the traffic provisions is feasible and desirable, and in what features of the traffic ordinances and regulations there must be flexibility to meet local conditions. Another question to be considered is what matters should be left to the state law, and what matters should be covered by neither state law nor municipal ordinance but by supplementary regulations that can readily be changed as conditions require.

A new committee on traffic accident statistics is also being organized with W. M. Steuart, Director of the Bureau of the Census, as chairman.

Fighting Snow in Albany and Toronto

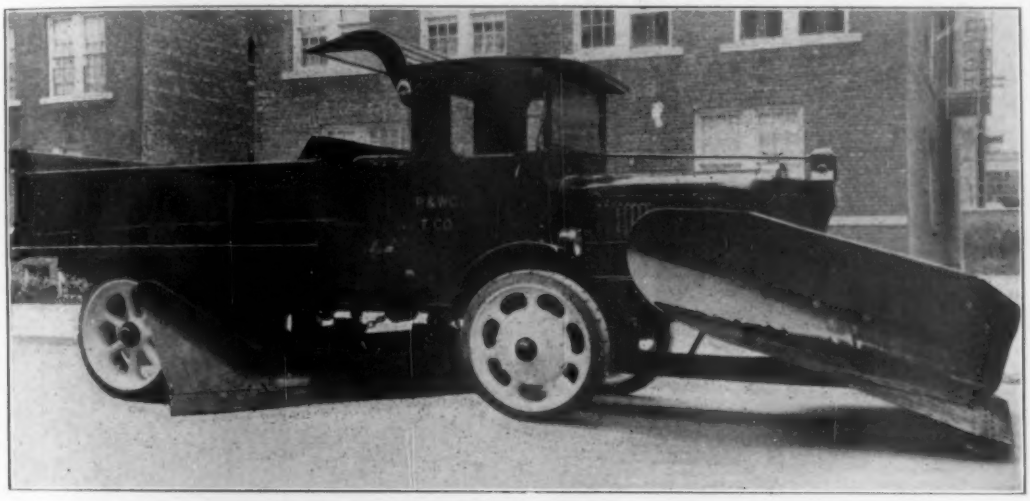
Abstract of Remarks at the Seventh Annual Conference, International Association of Street Sanitation Officials

By L. W. Herzog,
Commissioner of Public Works, Albany, N. Y.

DURING the last four or five years the problem of fighting snow has become increasingly important. This is due to the rapid development of automotive equipment. In Albany, N. Y., formerly the snow was removed by gangs of men and teams from a few of the business streets. Residential streets were not touched at all. It is a great question as to just how far the municipality should go in the matter of snow removal. The expense of removing snow is enormous, and expense is not the only consideration. In a city of the size of Albany, it would be a physical impossibility for the municipality to move all the snow in the city. In New York City an area of snow about the size of the city of Albany is removed and dumped into the river. This costs about $5,000,000 yearly. This sum is the amount of the total budget appropriation of the city of Albany, so that if we were to attempt to remove all the snow, it would simply double the tax rate.

In addition, it would be impossible to get sufficient floating labor to move the snow. It would be impossible to get enough trucks to move it and, if by any possibility we could raise the money and get the men and trucks, we should not have any place in which to dump it after it had been picked up in our trucks.

During December, 1926, about 18 inches of snow fell in Albany, necessitating the cleaning of the snow-removal section five distinct times. We extended operations to several new streets at that time. With the same amount of snow in March, we probably should not do anything else but plow the streets, except in the business section, where it is absolutely necessary to remove it. In Albany we get two or three feet of snow at one time, and if we did not remove it, it would be absolutely impossible to move later snows on our main thoroughfares, because we get thaws and a little rain and then a freeze, and the loaders could not take up the snow. It was necessary for us to move a great deal more snow this last year than we ordinarily do. We took out about 2,500 5-yard loads of snow in December.

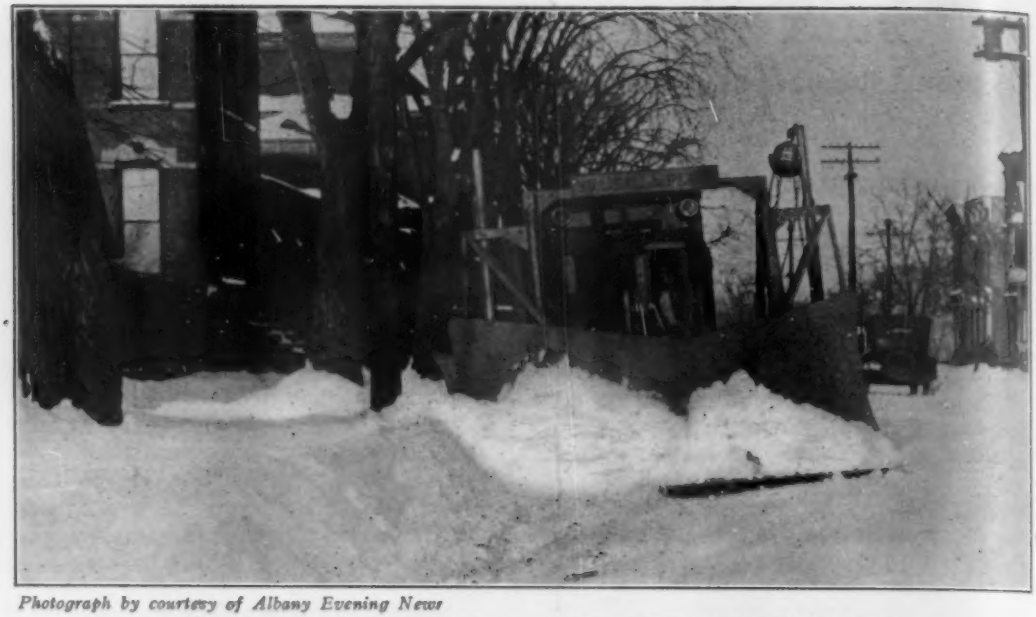


TYPE OF WALTER SNOW FIGHTER USED IN ALBANY, N. Y.

The Program in Albany

Our program calls for plowing the snow back as far as possible in the residential sections. The residential streets are mainly of sufficient width so we can make a traffic line permitting three automobiles to move freely. We have some very narrow streets where it is impossible to make more than one track through. The streets will become rutted, and it is impossible to prevent this unless the plows are continually working.

Residents are requested not to throw the snow into the streets; in fact, there is a city



Photograph by courtesy of Albany Evening News

REMOVING SNOW FROM THE RESIDENTIAL STREETS OF ALBANY, N. Y.

ordinance prohibiting this. Our men have to go along the sidewalk on streets where we are moving the snow, and our plows have to go into the streets where we do not move it and push it back on the sidewalks. This last winter a lady called me up and complained because we covered up her automobile path that she shoveled. She was told that we were not interested in automobile paths, but were interested in opening the streets.

Five years ago the city of Albany owned no snow-removal equipment. We had a couple of blade plows which were put on the front of trucks, and a couple of plows that we used with horses. About four years ago we bought a Barber-Greene loader and for the next year or two we did not buy anything more. In 1923 we started out to buy snow-removal equipment. We bought a 10-ton tractor and followed that by two 5-ton tractors and a Walter Snow Fighter. Then we purchased a Fordson and Wehr grader and started buying small truck plows. Another Barber-Greene loader was purchased, and now we have about twenty plows which are ready to start out as soon as the snow reaches sufficient depth, and we have enough equipment to open our two hundred miles of streets.

We do not plow sidewalks. The State Law of New York says that the Commissioner of Public Works may shovel sidewalks if the property owner does not do it in five days after due notice has been given him. The Police Department has usually taken control of that and has notified the property owners. Only last winter the Police Department could not get the snow removed from in front of one of the churches, and the job was put up to me. It went right back to the Police Department. The law does not make sidewalk snow removal mandatory.

In snow removal our men are sent immediately into the business district and continue working until the streets are opened as far as it is possible to do so. Each truck is assigned to a certain route and is supposed to continue on that route until the snow is plowed back as far as can be done. The truck goes out and makes one opening through the center or the side and then returns and plows back.

Albany has an ordinance which prohibits all parking from two o'clock in the morning until five. Of course, the police use discretion and when there are lights in the house, they do not pay any attention to the automobile in front of it. The ordinance is aimed to put a stop to moonlight garages and we find it has helped us a great deal in snow-removal operations. The plow is able to get through and make the one cut, and then after two o'clock we are able to widen the street when the automobiles are gone.

We also send special trucks out to remove the snow from in front of all churches. We also send these trucks out to remove snow where there is a funeral.

From the first snowfall, our snow-removal equipment is continuously working. One of our biggest difficulties has been the removal of ice

which accumulates. We have tried every known machine that has been manufactured and we now use an air-compressor with four light spades to break up the ice.

We are constantly looking for ways to improve the service. We have cut our costs down at least two-thirds during the last three years. While more money is being spent each year, the service is being continuously expanded. We now use nothing but 5-ton dump-trucks, and the purchase of a second snow loader made it possible to do twice the work at no additional cost except the wages of the crew of the loader.

We must have sufficient trucks to take care of any hold-over at the dumps. We dump into the Hudson River or elsewhere and find we are now cutting down hold-overs so that we can operate with 12 to 14 trucks for both loaders. We have discontinued the use of all men at the dumps and use a tractor with a bulldozer in front to keep the docks clear when dumping into the river. We also push the snow into the ravines when using the city dumps.

Whereas we formerly had a great deal of overtime, we now go into the business section during the daytime. A man starts out about six o'clock and strings red lanterns along the district to be cleaned, to prevent parking. As certain sections are cleaned, these lanterns are continually being moved ahead, and with the one-hour parking system in effect in the business zone, we have very little trouble with parked automobiles. When we do, we hook a truck onto them and pull them away.

Cooperation with Trolley Company

We have worked out an excellent system of cooperation with the local trolley company. We take the number of miles of trolley streets, give the trolley company nine feet on a single track and nineteen feet on a double track. Then we divide the total area to be cleaned into districts. Certain districts are assigned to the traction company, and the city takes certain districts on which car lines are operated. In that way the two departments work together very well and we do not have to bother with the trolley company's streets and they do not have to bother with ours.

By George W. Dies, Street Commissioner, Toronto, Ontario

The removal of snow from public thoroughfares has now become an absolute necessity. The change of the motor car from a pleasure vehicle to a commercial vehicle during the last decade has demanded that the streets of the city be open for traffic at all seasons of the year.

Recollections are still fresh of the time when street-car lines were the only thoroughfares that were passable during the winter months and when every side street and vacant lot was the dumping-ground for the snow from the more important thoroughfares.

In the work of removing snow from the streets, many difficulties have to be confronted, and various devices have been offered for effective, economical removal. Consideration must

Photograph by courtesy of Albany Evening News

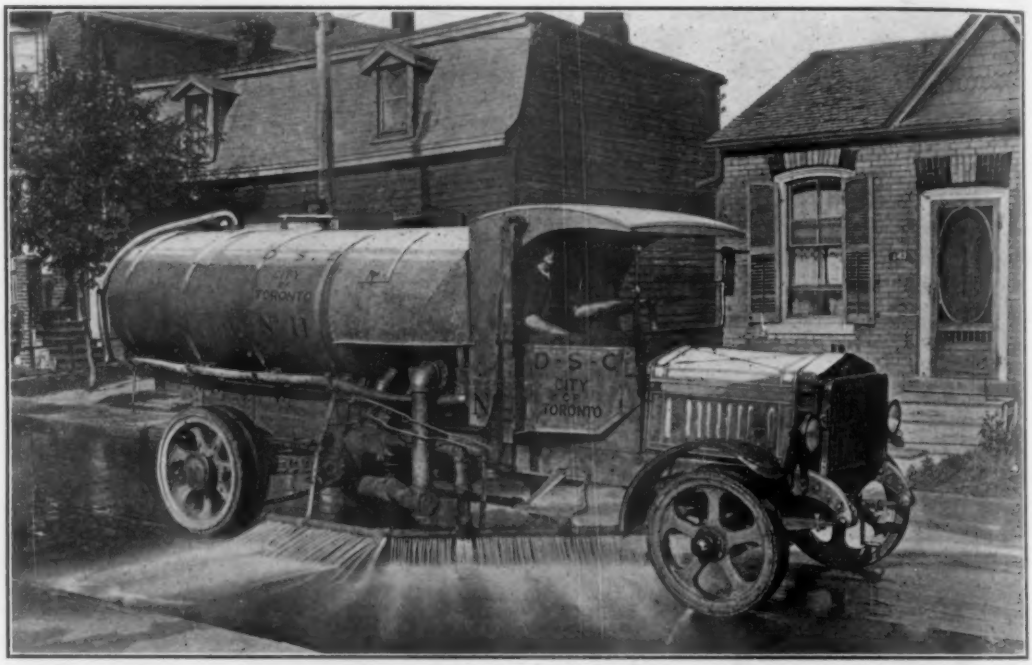
BARBER-GREENE LOADER HANDLING SNOW ON BUSINESS STREET OF ALBANY, N. Y.

be given to every angle of the work, such as weather conditions, method of removal and disposal, points of disposal, vehicular and motor traffic, street-railway and bus lines, and congested pedestrian areas. Each condition presents its own problems. Thus, an effective method in one municipality may prove costly and unsatisfactory in another.

Toronto has gained valuable knowledge in this work in recent years. During the season of 1923-24 the city dealt with one of the largest continuous snowfalls it had had for a long time. While the equipment at our command was far from adequate and it was necessary to make use of vehicles from other services, rapid progress was made. Attention was first given to main thoroughfares and intersections. This caused the vehicular and motor traffic to take advantage of the open thoroughfares, thereby impeding the work considerably.

The disposal method plays an important part in the economical removal of snow, as well as presenting its own problems. Utilization of sewer manholes throughout the city affords the most effective method for disposal. The construction of special snow-holes at certain locations has greatly relieved the situation, owing to the greater capacity of the holes and the fact that the disposal of snow is accelerated by a flow of water.

The deposits of snow on vacant land or in ravines is found necessary in many instances. This practice is, however, diminishing each year, owing to the growing scarcity of available ground for this purpose. This method is not entirely satisfactory aside from the saving effected by a short haul, inasmuch as it is usually late in the spring before the last of the snow disappears. Toronto Bay has in the past been utilized to a great extent for the disposal of snow and ice. Whenever it was possible, the vehicles deposited the snow upon the ice some distance from the shore, but during the milder weather it is dumped from the dock into the water. Owing to the development of the waterfront and the danger of pollution, this method of disposal is used only when necessary.



MOTOR FLUSHER WHICH IS CONVERTED INTO A PICK-UP TRUCK BY THE DEPARTMENT OF STREET CLEANING, TORONTO, ONT., AND EQUIPPED WITH A CHAMPION SNOW-PLOW FOR WINTER WORK
In the removal of snow, motor trucks and Hoosier wagons are used exclusively, except in times of emergency, when vehicles in the refuse collection service are utilized

Fight the Storm When It Begins

We have learned by experience that it is much easier and better in every way to fight a storm when it commences rather than wait until it is over, when the accumulation of snow is too deep for it to be easily handled. The snow-plow is used most advantageously for handling drifts and for windrowing the snow to each side of the roadway, thus permitting the teams and trucks to be loaded as quickly as possible. Congestion is avoided by placing

the men in gangs of twelve to fifteen and stationing them at given points, all working in the same direction, sufficient men being placed with each vehicle so that there may be no time lost through loading or waiting vehicles.

The opening of channels in the vicinity of culverts is performed by small gangs working in defined districts and is a very necessary service in order to eliminate the danger of flooding in the event of a thaw.

The parking of vehicles materially handicaps the gangs in the performance of their work, particularly the snow-plows, and in many instances when the driver cannot be located, it necessitates shifting the car.

Organization

Organization is the most essential factor in the effective and economical removal of snow. The first step in the fall of the year is the preparation of a map defining each district, and the location of foremen and disposal points.

Seasonal employees who are engaged during the summer months are given preference on all snow work during the winter. In recent years removal has been used as a means of providing work for unemployed, and during heavy falls approximately 1,500 men would be engaged. This naturally increases the cost of work above normal times, as well as reducing the efficiency of the work performed. Night gangs are used where necessary in the downtown section and make considerable more progress than the day gangs, inasmuch as there is no interference by traffic.

The performance of the work is under the direct supervision of the divisional superintendent. The patrol foremen are held responsible for the execution of the work in their respective districts.

Toronto has 560 miles of streets, 459 miles of which are paved and 198 miles of street-railway single-track mileage. The removal of snow from the roadways is confined to the street-car lines, main thoroughfares, downtown and business sections, while only the pedestrian crossings are kept clear of snow on all other streets. Each householder is responsible for the removal of snow from his sidewalk. Arrangements can, however, be made for the snow to be removed by the city, the cost thereof being chargeable to the property owner and included in the annual tax bill.

The Transportation Commission pays 30 per cent of the cost of snow removal from all street-car lines and in addition maintains its own gangs for switches in loops and yards.

The Commission has in operation 28 street-car sweepers, four flat cars equipped with plows, three Walter motor plows, and one Fox motor snow-broom, the latter being used upon bus lines. The trolley snow-plows and sweepers are equipped with steel blades mounted upon swinging arms which push the snow 8 to 10 feet from the track allowance, in a windrow, from which it is later removed by the city.

Elected Representatives Privileged to Criticize Paid Public Employees

A MUNICIPAL reeve or councillor of British Columbia is privileged to give full and frank utterance to his opinions regarding a paid municipal employee in cases where that employee's fitness for office or his professional conduct should, in the opinion of the reeve, be brought before the electorate. Even when such statements are subsequently discovered to have been unfounded, the reeve runs no risk of being sued for slander if he believed the charges true at the time he made them and was not actuated by ulterior or improper motives.

This significant decision was handed down in an action brought by the Municipal Engineer of West Vancouver in which he alleged that the Reeve had slandered him at a public meeting held on January 6, last, in Hollyburn Theatre, that city. Statements which constituted grounds for the suit, as quoted in *Municipal News* of British Columbia, included the following:

"The District of North Vancouver has repeatedly refused assistance in maintenance and construction of Marine Drive Bridge because of our Engineer, and we will get no assistance from the District as long as he is Engineer.

"Mr. Duncan has caused public funds to be wrongfully and wastefully expended on grading and improvements on Ambleside Park. The Municipality of West Vancouver has lost thousands of dollars as a result of Mr. Duncan being engineer."

The statement admitted to have been made by the Reeve that the engineer "had caused public funds to be wrongfully and wastefully expended," etc., was found by the jury to be untrue, but in spite of this fact the case was dismissed, the verdict being that the Reeve believed his allegations to be true, that there was no malice, and that a public meeting of ratepayers provided a privileged occasion which exempted him from charges of slander.

Precedent for this decision is to be found in the English case of Padmore vs. Lawrence, in 1840. In that case, it was sought to restrict the privileges of making charges against another municipal official and a paid employee so that it would not protect the reeve or councillor unless the charges were made at a council meeting, but these intended restrictions did not become effective.

Super-Lighting for a Super-Highway

By Carl H. Peterson
City Manager, Ferndale, Mich.

A FIVE-minute halt in traffic and then, amid horns blowing and sirens shrieking, the new lighting installation on Wider Woodward, at Ferndale, Mich., was turned on by Robert Lewis, President of the Commission. The event of last January and the subsequent freedom from serious night accidents are of more than local interest; though the ceremony was that of a suburban community, it was the finishing touch to a new standard of highway building.

HIGHWAY LIGHTING IN FERNDALE, MICH.
1. Wider Woodward Avenue with new lighting system; 10,000-lumen lamps, staggered, with one lamp for every 120 feet of street on each roadway
2. Daytime view of a roadway, showing location of lighting standards. The lamps are mounted on heavy-duty, one-ply cadmium-coated standards, 21 feet high, and are suspended from 7-foot bracket arms
3. Night view from same point, showing lighting results on one roadway

Much has been written during the last several years in municipal and technical publications concerning Woodward Avenue, the world's greatest highway. Although but a comparatively short stretch of the highway has been entirely completed at this time, plans call for its extension from Detroit, through Pontiac and Flint (the three automobile wonder cities) and eventually to Saginaw—approximately 100 miles of a 204-foot highway. It is fitting that these automobile centers of the country point the way in the construction of highways. They are also pointing the way to another development of almost as much importance—and that is 24-hour use of highways.

All through the night there is an endless procession of trucks carrying automobile bodies and automobile supplies, and the truck procession is thickly interspersed with "drive-aways." No one could watch this procession without having imbued in him something of the romance of this great industry. Neither could one watch it without realizing the tremendous part that light will play in the development of night traffic. A "super" highway, we felt, could be a superhighway only if its efficiency is not lessened with the coming of night.

We realized the importance of lighting and did not look upon it simply as a system of road markers, but rather as a public necessity that would make night driving safe, comfortable, and convenient. Hence, when the highway section through Ferndale was nearing completion, the city officials began the study of an appropriate and effective lighting system. Meetings were called with officials from all the municipalities from Detroit to Pontiac. County and state officials were brought into the study. The writer, together with President Robert Lewis, Commissioner Ray Donahue, and County Engineer Leon Balknapp, decided to visit Nela Park for a review of the technical facts concerned with our particular problem. There, at the "Forty Streets in One" Street-Lighting Laboratory, were pointed out those salient factors desirable for incorporation in a lighting installation in order to make it efficient and effective. The technical illumination data are as follows:

Mazda lamps of 10,000-lumen size are located in a staggered arrangement and so spaced that there is one lamp for every 120

feet of street on each roadway. The units are mounted 21 feet above the pavement and are suspended beyond the curb by means of 7-foot bracket arms. Such construction brings the units well above the direct line of vision and provides a sheen or gloss of light over the entire pavement against which even the smallest objects stand out strikingly in silhouette.

The units chosen were General Electric and of the type known as Form 25B Novalux. The design of standard chosen was Union Metal, but instead of the usual two- or three-ply pressed-steel construction a new development is used—one-ply cadmium-coated, heavy-duty construction. Individual insulating two-coil transformers are used in the base of each post to transform the 6.6 amperes of the series circuit to the 20 amperes of the lamps. Pole-type constant-current regulators controlled by a time-switch are utilized. Parkway cable is employed, buried directly in the ground 18 inches below the surface, except at street intersections, where it is drawn through iron pipe under the pavement. Current is purchased from the Edison Company.

The Welsbach Street Lighting Company of America was chosen to install the equipment and maintain the system on a contract with the city of Ferndale. Such maintenance covers the cleaning of equipment; replacement of broken or damaged parts to the unit, post, or wiring; painting the equipment once a year; also the patrolling of the system and the replacement of burnt-out lamps. In order to reduce the lamp outage to a minimum and thus avoid expensive trouble calls and also to insure so far as possible a minimum of dark spots caused by burnt-outs, the practice of complete renewal of all lamps at the end of each 1,350 hours of burning has been adopted. This practice, of course, eliminates from the circuit lamps which may show a defect such as a sagging filament and which otherwise might burn indefinitely at a materially decreased efficiency. The number of such lamps in any given lot is very small, probably only one out of a hundred. It is obvious, however, that over a period of years unless such provision is made to take care of it, the circuits will become pronouncedly spotted with low-efficiency lamps.

The initial installation in Ferndale consisted of 147 units and now plans are being made for an addition of 60 posts.

There has not been a serious night accident since the lighting was installed. Although the lighting is probably not entirely responsible, the citizens of Ferndale have a renewed pride in their town; since the lighting was put in, they have voted to change the charter from that of a village to a city, the community having grown in ten years from 1,500 to 15,000 population.

National County Highway Officials Association Organized

THE American Road Builders Association has just completed the organization of a national County Highway Officials Association, a body of local road officials, representing each of the 3,070 counties in the United States. The new organization will function similarly to the American Association of State Highway Officials and will be known as a division of the American Road Builders Association. The organization meeting was held at Washington on June 17, 1927, at which time a constitution was adopted and officials elected. Thomas J. Wasser, Supervising Engineer of the Board of Chosen Freeholders, Jersey City, N. J., was elected President. Four regional Vice-Presidents, were elected. They are Charles E. Grubb, Wilmington, County Engineer of Newcastle County, Del.; Edward W. Hines, Detroit, Road Commissioner of Wayne County, Mich.; John Kirkpatrick, County Judge, Wayne County (Benton), Kansas; and Stanley Abel, County Supervisor, Taft, Calif.

The constitution adopted resembles somewhat the code used by the American Association of State Highway Officials and sets forth the purposes of the New Association as those of standardization of county road building, maintenance and finance methods, dissemination and exchange of road information and the stimulation of local road construction.

The need for a national organization of this sort has long been felt. With 3,070 separate political subdivisions, constructing and maintaining highways without technical intercourse or standardization of methods, the waste of county or township funds has been inevitable. The expenditures under local agencies are approximately the same as those supervised by well-organized state departments. The roads affected are in most cases thoroughfares of a peculiar nature, being all-important to the immediate district in which they were laid, but at the same time, not handling sufficient traffic to justify the construction of the more expensive modern highway. This peculiarity makes the county problem of intricate importance and emphasizes the necessity for technical standards of grading, graveling, surfacing or otherwise improving the local roads.

Committees are to be appointed on survey and plans, road type selections, designs, contracts and specifications, county highway construction, county highway maintenance, bridges and culverts, materials and tests, county highway legislation, county administration, standardization of accounts, construction and maintenance equipment, publications, county highway finance, traffic, publicity and special committees.

Humanizing the Public Relations Division of a Municipal Utility

By Myron G. Ellis

Deputy Water Commissioner, Santa Monica, Calif.

THE impression that office machinery of public utilities, especially those municipally owned, is ordinarily an automatic mechanism driven by an arbitrary and remote power, has long been prevalent. This impression and the attendant criticism of the utility have certainly not been without foundation in a great many instances—perhaps a majority of instances. The writer of this article has had many years' experience in managing a public utility office, and through these years has made close study of strength and weaknesses of other offices with a view toward improving his own.

Too often it has been found that the policy has been cold, automatic, and unthinking. Too often a customer registering a complaint or making a request somewhat out of the ordinary has been served by an indifferent clerk and vouchsafed the time-honored formula. "We will see what can be done about it." Too often nothing is actually done, and frequently the action taken or the investigation made is accomplished in an impersonal, indifferent manner that results in no advantage to the utility or to its customer.

A Helpful Discussion

In this interesting article Mr. Ellis states very frankly his own ideas of the proper attitude of the municipally owned utility toward its customers. He believes in courteous, open discussion and explanation rather than in the old "Public be D—d" attitude or the oily manner of the professional politician.

In the collection division of the utility there is often a tendency to be too harsh and inflexible in the enforcement of rules of payment. "Pay by the 10th or be shut off" is in most offices the invariable rule, and often this ruling is enforced to the letter by some clerk functioning without close supervision by a superior who should be willing to consider the merits of each individual case before taking arbitrary action.

The author of this article is now office manager for a municipally owned water-works in a city of 40,000 population on the Pacific Coast. In this city there are between eight and nine thousand individual consumers, each of whom receives a bill for service each month. Through experiment, systematizing in a personal rather than an impersonal way and in the application of human rather than mechanical principles toward the solution of problems, an organization and a system have been developed which, though imperfect as human machinery must of necessity be, have certain advantages unattainable by more inflexible methods.

Courtesy and Thoughtfulness

Clerks who meet the public are selected with particular care. They must be of pleasant address, physically clean, courteous, intelligent, and capable of accepting unpleasantness and occasional abuse without loss of temper. Those who handle the Order and Adjustment windows are given preliminary instruction in the elementary principles of hydraulics so that they may be able to answer intelligently questions as to pressure, size of pipes required under different conditions, and the like. Inspectors who investigate complaints of poor service or high bills and test doubtful water-meters have instructions to cooperate fully with the consumer in an effort to locate the causes of the complaint. They are not allowed to go through some mysterious hocus-pocus, but are required to explain the reasons for and the principles of the particular test they may happen to be making.

Of course, many trivial complaints are received, but all are given courteous, helpful consideration. An experienced, tactful adjustment clerk can quickly decide whether a complaint is justified under the circumstances. In many cases he can suggest causes or reasons that may not have occurred to the customer and can end the investigation on the spot, but if the customer wishes to go farther with the matter, an inspector is sent to his property with instructions to make a thorough investigation. The customer complaining of an apparent overcharge of thirty cents receives the same attention as the one who thinks his bill is fifty dollars too much, on the theory that the smaller amount probably means as much to the poverty-stricken old woman as the larger does to a more affluent citizen. The criticism may be made, and perhaps justly, that we spend too much on trivial complaints not justified by the circumstances. We answer this

by saying that the operation of our department is supported by our customers and we recognize their rights to know the reason for the charges they have to pay. Furthermore, the cost of these investigations does not aggregate a large amount. A part of this cost might conceivably be allocated to good-will, an intangible item which is allowed a place as an asset on the balance sheet of private enterprise—why not then on the balance sheet of a public enterprise?

Collections

The matter of collections must receive considerable emphasis. We employ no collectors. Bills are mailed out the first of each month and must be paid at the office or remitted by mail. Probably 95 per cent of our customers pay regularly without any collection solicitation. As is true in almost all human relationships, it is the minority that is troublesome. The office manager gives his personal attention to the collection of delinquent accounts and brings a good many factors to bear upon the problem. No "shut-offs" are allowed without his personal authorization.

First and foremost in our handling of past-due bills, we make an effort to separate the sheep from the goats. Certain names bob up on our delinquent lists as regularly as clockwork. We soon grow to know who they are, and with them we show scant patience, as they are usually persons who pay only such obligations as they are forced to pay. We give them one formal notice, and if remittance is not received, their service is discontinued. Another type which we handle with more care is the family which, by reason of illiteracy, lack of thrift, or misfortune, is continually on the verge of penury. A surprising number of this type may be found in any community. We have them fairly well catalogued and in many instances keep in touch with individual cases through some of the social welfare agencies. In this way we are usually able to eliminate professional mendicants from consideration and to extend some additional credit and consideration to those who are making an honest and conscientious effort to meet their obligations. Those who are completely beyond self-aid have their bills paid from the municipal charity fund until such a time as the social workers report them again self-sustaining.

Another type of delinquent account probably gives us more trouble than any of the foregoing. This is the citizen who by reason of some personal idiosyncrasy, carelessness, self-importance, or indifference, allows his bills to lapse. In perhaps the majority of cases these people are responsible, law-abiding citizens, perhaps property owners and of good or possibly influential standing.

It is obviously unfair to apply rule-of-thumb collection methods to this type of person if another method, not too cumbersome, may be devised. We have found that in many cases a telephone call or letter from the manager's secretary will bring results. In some cases, a letter is sent out under the signature of the elected city official who is in charge of the Public Works Division of the municipal government. The treatment of cases varies with the individual. Shut-offs are not made unless all other means fail. The office manager has a private card index of accounts which are regularly delinquent, showing what methods have been successful in securing payment from each individual. He finds it necessary to keep well informed as to "who's who" locally.

Worth-While Results

We do not feel that we are going too far in these matters. The percentage of delinquent accounts is a very small proportion of our total number of accounts, and the attention given them adds very little to the day's work—certainly very much less than the average credit department of the average commercial enterprise adds to its own office routine.

It is admitted that our methods are perhaps a radical departure from general practice, but the results speak for themselves. Our methods of dealing with the public receive favorable comment and our losses for uncollectible water accounts are very small. It is admitted that our collection methods might not be applicable to a very large city, but they can certainly be used to advantage in a community of 40,000.

Shortcomings of Small-Town Fire Departments

THE philosopher who observed that the room for improvement is the biggest room in the world, if he is still living and a reader of THE AMERICAN CITY, will no doubt welcome this letter from a public-spirited merchant in one of the lesser communities in Mississippi. It is quoted literally:

"I think the small town is the Place that need Enlighting on Fire Fighting—One Near hear Found there Hose stopped up with Bird Nest. another Forgot the wrench. another had a large Fire they said the Hose was on the Reel Backward. and near all. Have Trouble getting the Hose Coupled up But if you had a Book to Enlighten them Not One in 100 would Ever Know there was Such a Book. Much less see it."

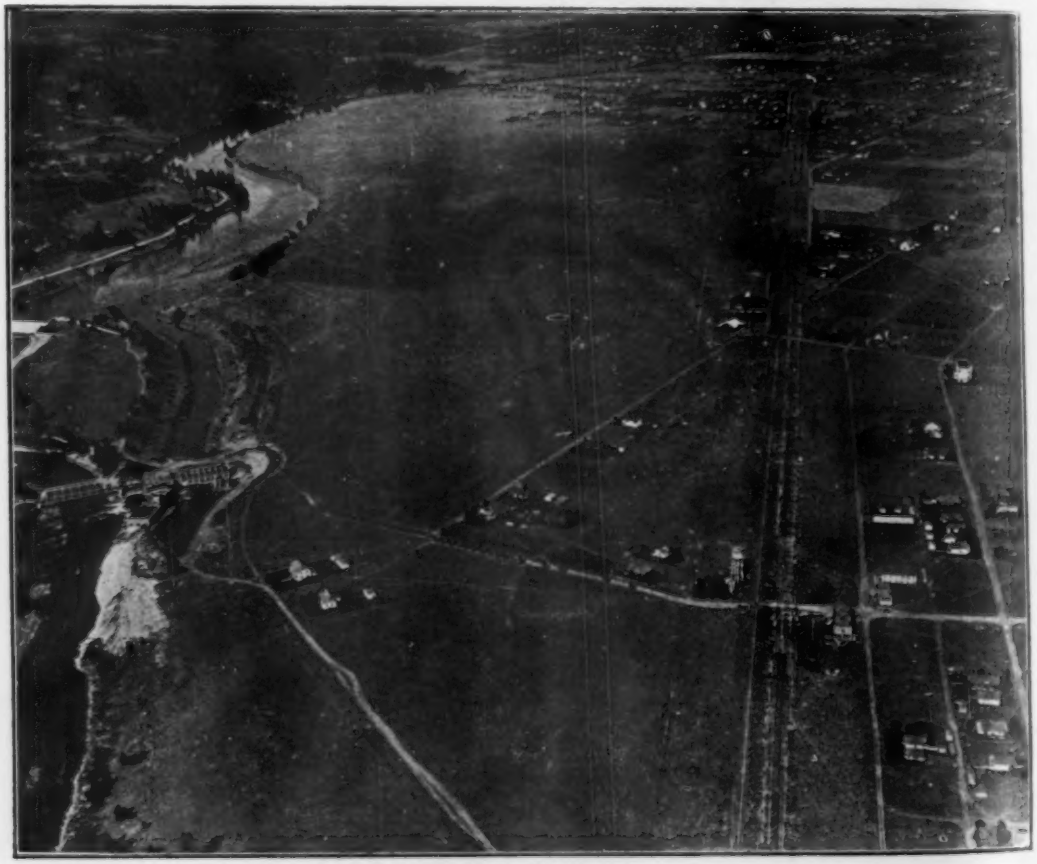
Spokane's Airport and the Stimulation of American Air-Mindedness

By Ellsworth C. French

National Air Derby Association, Spokane, Wash.

LOCATED beside the paved Trent highway within a fifteen minutes' drive from the business district of Spokane, Wash., is the Spokane municipal airport, which will be the scene of the 1927 national air races, and the western terminus for the National Air Derby race from New York, as well as the finish of the Pacific Coast Air Derby from San Francisco to Spokane.

Roaring out from Roosevelt field, New York, at 5 A. M., September 20, pilots will streak the sky as they wing their way westward in the $28,250 race to Spokane, the first leg of which will be flown over the present transcontinental air mail route into Chicago. Dawn will just be breaking over the Golden Gate of San Francisco Bay twenty-four hours later, when the take-off will be made from Mills municipal airport, San Francisco, in the $5,000 flight up the Pacific Coast to Swan Island municipal airport, Portland, Ore., where all planes must land for not less than five minutes. "On to Spokane to see the finish of the New York Derby" will be the shout of pilots in the Pacific coast air race as they hop off from Swan Island on the last leg of their journey. At the Spokane airport nature seems to have foreseen the day when aviation would grip America, because adjoining the city limits is a natural landing field one mile and a half long, and a half-mile wide. Prevailing winds blow lengthwise of the field, thereby making it possible at all times for airplanes to take off into the wind. A gravelly soil provides per-



THE SPOKANE AIRPORT

fect drainage, which makes flying possible the year around. Void of fog, it is not an uncommon sight to see airplanes landing at the field on Christmas Day.

The Federal Government has already realized the importance of the Spokane airport to its military program of aerial defense, by locating the 41st Division Air Service Unit, Washington National Guard, at the scene of the national air races. Major John T. Fancher, Commander of the Unit, is managing director of the National Air Derby Association. His division of air service includes the 116th observation squadron, 116th photographic section and 116th medical detachment. Ten Government planes are being flown under the regular army instruction of Lieutenant C. V. Haynes.

For three summers this airport has been the northwest base for pilots flying Federal forest patrol planes over the vast and richly timbered area of Washington, Idaho and Montana. Three large steel hangars have been constructed at Government expense.

Cities throughout the Northwest are determined to carry forward the slogan of the National Aeronautic Association—"Make America First in the Air." It was largely this slogan which aided in the promotion of the two Derbies, which will be flown by commercial airplanes only. The Northwest has long wanted a northern air mail line which would link together the rapidly increasing population of the Pacific Northwest with the eastern cities.

Linking-in Cities and Towns Along the Route

Therefore, the National Air Derby from New York is far more than a colorful sporting event, as the rules and regulations governing it link-in as many cities and towns along the route as possible. Pilots in the race are being ordered down for over-night stops and stops at five-minute control stations, for the purpose of stimulating an "air-mindedness" across the entire United States.

Under the rules of the New York race, the first leg will be from Roosevelt Field to Cleveland, Ohio, where a five-minute landing will be made. The second leg will be to Chicago for another five-minute landing. St. Paul has been designated as the first over-night stop for A class planes, which will hop off at 5 A. M., September 21, on their last day's flight into Spokane. Aberdeen, N. Dak., Miles City and Butte, Mont., are the five-minute control stations into Spokane.

Intermediate landing fields, where the planes will find gasoline and oil awaiting them, have been designated for A class planes at La Crosse, Wis., Lemmon, S. Dak., Billings and Missoula, Mont., Bellefonte, Pa., and Bryan, Ohio.

Contestants in the B class will leave Roosevelt Field at 5:30, September 19, and will fly the first leg of their journey to Bellefonte, Pa., for not less than a five-minute stop. The second leg will be into Cleveland, and the third leg into Bryan, Ohio. Chicago will be the last leg of the first day's flying. As in New York, the start of the second day's journey will be from Chicago at 5 o'clock on September 20, with the first hop into St. Paul, Minn., the next into Fargo, N. Dak., the next into Bismarck, N. Dak., and the end of the second day's flying into Glendive, Mont., for an over-night stop.

The start from Glendive the following morning will be for a five-minute stop at Billings, and then on to Missoula before the final dash into Spokane.

These stops will serve to show the feasibility of landings, and will no doubt result in still further increasing the nation-wide interest in airports and aviation which has resulted from the recent exploits of American aviators at home and abroad.

EDITORIAL NOTE.—For references to several sources of information on airports and aviation, see THE AMERICAN CITY for July, 1927, page 5. Another source from which valuable data on aviation can be secured is the Daniel Guggenheim Fund for the Promotion of Aeronautics (598 Madison Avenue, New York), which is sponsoring Colonel Lindbergh's three-months' air tour in the interest of commercial aviation.

Air-Mail Flying Field for Chicago Post Office Roof

THE artist's drawing, completed on July 20, of the Post Office Department's conception of the new Post Office Building to be erected in Chicago when Congress supplies funds to carry out the authorization already made, is reproduced in the accompanying illustration. In a statement issued with this drawing, John H. Bartlett, Acting Postmaster General, says:

"In addition to providing the most up-to-date equipment for mail handling, including some altogether new time- and labor-saving features, plans for the new building picture an air-mail flying field on the roof, and the prediction is made that by the time the building is completed—in six or seven years—this feature will be a practical one.

"The new building is to be erected on a site bounded by Canal and Clinton, Harrison and Polk Streets. The plot is 320 by 794½ feet, making 6 acres of ground space. It is contiguous to the Chicago Union Depot, making possible direct handling of mails to and from trains entering that station. The building is to be six stories high. The height of adjacent buildings at present would not interfere with landing airplanes on the roof.

"Platforms on the first floor provide for train and mail car separations in a manner not previ-

PROPOSED NEW POST OFFICE, CHICAGO, at CANAL AND POLK STREETS, WITH AIRPORT ON ROOF
The Acting Postmaster General says that this drawing should be entitled "A Glimpse into the Future, or Taking Time by the Forelock"

ously utilized in any post office in the United States. Other new features which have not yet been used in the larger offices but the worth of which has been demonstrated in major postal stations, make the proposed Chicago office a model for the construction, with minor changes, of all the large post offices authorized by Congress in the public buildings program."

Street Cleaning After the Lindbergh Parade in New York

SOME OF THE TONS OF PAPER NEW YORKERS SCATTER OVER THE STREETS DURING A POPULAR CELEBRATION
Fifteen minutes after the parade had passed, the Department of Street Cleaning water sweepers were at work. The first view was taken on lower Broadway when Lindbergh arrived; the second, on Fifth Avenue between 26th and 27th Streets

A Model City Purchasing System

By Louis Brownlow

HOW can the city buy more and better goods for less money?

In answer to that question I am going to outline the chief features of a model city purchasing system. Such a system is installed in a city of a hundred thousand people, but would work in principle in any city of whatever size, large and small, although it probably would have to be changed in technical detail for cities of less than fifteen or twenty thousand and for those of more than half a million.

In this city the purchasing agent buys all supplies and materials and lets minor contracts — for repairs and small jobs — for all the city departments, including the water-works and the schools. That the inclusion of the latter might be difficult in cities where the school district is entirely independent of the city government, I admit, but nevertheless it would save many taxpayers' dollars.

Requisition for purchases come to the purchasing agent from any city employee authorized to make them, but always with the signature of the responsible head of the department in which he is employed. Thus the purchasing agent holds responsible to him for the integrity of the requisition the heads of departments and no one else. For the schools, operating independently in all other respects, the requisitions come from the schools' business manager.

When the requisition is received, it gives the character of the supplies desired, the amount estimated to be needed, and some indication of the exact class of supply to be bought.

Based on this the purchasing agent gets competitive prices. He has no mark of $100 or $500 or $1,000 at which to begin to get competition—although the law says that he may buy without competition in any amount below $500. But he gets competitive bids in every case—I will discuss emergency purchases later—down to one dollar. He keeps a record of these bids, whether they come in writing, over the telephone, or how. He posts on the bulletin board the notice that he intends to buy certain things and when. He does everything he can to get as many bids as he can.

When the bids are all in, he arranges for tests if need be, or for other means of comparing the products as well as the prices. If the product be well standardized, the price comparison alone is made and the award goes to the lowest bidder.

Then a purchase order is made out in quintuplicate — five copies with one operation of a specially designed typewriter. The original goes to the auditor. The auditor examines the order, sees that there is sufficient balance in the proper appropriation of the budget to pay for the goods when received, and charges the estimated cost of the total order against that balance—even though delivery and payment may not come for six months. He then endorses on the face of the order a certificate to the effect that there is a sufficient fund to meet the cost of the order and that its estimated amount already has been charged against that fund, and then it is sent to the successful bidder. Not until the auditor has so certificated and charged the items is the order valid.

One copy goes to the auditor, one to the requisitioner, one is retained by the purchasing agent and, in this particular city, the other goes to the city manager, who returns it to the head of the finance department for notation. This last copy then comes back to the purchasing agent, so that he has two files, one by name

Centralized Purchasing and Municipal Economy

Emphasizing the fact that municipal purchasing agents handle many hundreds of millions of dollars of taxpayers' money every year, and that their honesty and intelligence have a very important relationship to economy in public expenditures, Louis Brownlow devotes five of his recent syndicated newspaper letters to problems of municipal purchasing. Two of these letters have been combined in the present article.

Mr. Brownlow is a strong believer in centralized purchasing for municipalities. In one of the other letters of the series he says:

"The centralized purchasing office is a necessity if the affairs of a city are to be well managed and if the money of the taxpayer is not to be wasted. There are limits, of course, in the size of the city in which one purchasing agent may handle all the work of the city, and in the very large cities decentralization of detailed work is necessary, but even in the largest of cities there should be a unification of direction and policy control over all the purchasing agencies of the city."

EDITORIAL NOTE.—Municipal and state purchasing agencies are discussed in a ten-page chapter of the Standards Yearbook for 1927, published by the U. S. Department of Commerce.

of the vendors, alphabetically, and one by serial number.

The copy that goes to the requisitioner is most important. It has upon its face a blank to be filled in under the title "advice of material received." When the goods come, the receiving person who must have this copy fills in the statement of the goods received, their weight or count or other quantity measure, and their condition on arrival—good or bad. Then this copy goes back to the auditor, and the auditor will not pass the claim for payment until he has this copy duly certificated by the official who has received the goods.

When the goods are paid for, the files will show a complete record of the transaction. The original requisition on file with the purchasing agent, the copy on file with the department that ordered the goods, the copies of the purchase order in two files in the purchasing office, and the auditor's copy with the statement that the goods have been received in full quantity and in good condition, attached to the files as supporting voucher for the payment made. With this the purchasing agent has his file of the prices submitted by other bidders to show the range of the competition. The history of any transaction may thus be run down in a few minutes. The fact that the system is operated by human beings means that there will be mistakes, and the very perfection of this system makes these mistakes show up. The consequence is that errors that under another system would be utterly undetectable here come to the top to be made much of by political opponents and others who for reasons of their own would prefer less publicity in city purchases.

Who Shall See to the City?

The installation of a proper centralized purchasing agency under the right sort of man will save the city treasury much money, but it will inevitably bring on a whole lot of political trouble.

The question arises at the very beginning: Shall the city buy where it can get the best prices? Or shall it buy from home-town merchants? There is political dynamite in that.

Then: Shall the city buy from a firm in which a member of the city council or a city commissioner is a partner or a stockholder?

I have held it to be wiser to buy from local merchants when they can supply the goods needed at the lowest price, freight and drayage being considered, or when the difference in time of delivery outweighs a slight advantage in price. But I hold that the bids of outside dealers should be invited and welcomed and that orders should be placed with them when they make the best offer, all things considered.

The argument that because a man is a taxpayer he is entitled to the city business, is not sound when pursued to the point that it will cost all other taxpayers more money to give it to him. Then, so curious is human nature, the very fact that outside bids are to be taken will reduce the amount of the home folks' bids. I have seen it happen.

As to the second question, I have known cities where the rule that no purchase could be made from any firm in which a member of the city administration was interested has been strictly applied, and I have known cities where there was no such rule, in which the purchases were made without favoritism. I also have known cities in which the prohibition existed but was ignored.

From my experience, I believe that it is better to have such a rule and to enforce it rigidly. I formerly did not think so, and felt that under certain circumstances the rule might operate to the city's disadvantage. But I have changed my mind. The city purchasing agent ought to be like Caesar's wife, and he ought to refuse to receive a bid from any firm in which any member of the city administration is interested, if the laws and the charter so permit, and in many cities they do. It will give the purchasing agent an independence which is absolutely necessary to the success of his work.

A good purchasing agent will be reasonable concerning emergency purchases made at night, or when there is no time for the routine, but he will be inflexible in seeing to it that every such emergency purchase is fully explained and is completed with due observance of all the formalities. The more red tape required after emergency purchases—none should be required before the purchase—the less will be the temptation to invent emergencies.

Standards of Quality and Price

Standards of quality as well as of price will be kept in mind. This brings up the extremely difficult matter of machinery and of patented and specialized articles where it is impossible to get direct competition. The best practice is to write open specifications and get the widest possible range of prices and then make the selection on the basis of performance tests and operating costs. In this phase of the work the opinion of the department head that is to use the machinery or appliance must be considered, and he always should be represented at the performance tests, or consulted as to the application of measures of quality.

Yet even in this field, the very existence of a well-managed purchasing agency will tend to obtain closer prices for the city, especially when the purchasing agent is backed, as he ought always to be, with a city finance department so organized that it always discounts its bills.

Many a city loses thousands of dollars a year because the bills have to go before the council or some other legislative body for formal approval before they can be paid. This delays them a month, and the cash discount is lost. I have never seen such a public formality of approval of bills amount to anything, and when it can be dispensed with in favor of the control of a modern financial organization controlled by a continuous audit, the city will save much money.

None of this will have the full beneficial effect unless the purchasing agent is an able man, a good trader, an honest man and a hard worker with a thick skin, who doesn't mind the slings and arrows of outrageous political gossip.

If the purchasing agent is a crook, or a would-be crook, such a system will cramp his style so much that he will soon be reporting to the city council that all the red-tape should be abolished in the interest of economy.

If the purchasing agent is a well-meaning ignoramus, this system will compel the employment of a chief clerk who will get some good out of it.

In other words, regardless of the type of man at the head of the purchasing department, some such system as I have been describing will save the city money. The better the man at the top, the more money will be saved.

For the lack of such systems, easy to install as they are, the cities and towns of the country are wasting every year hundreds of millions of dollars of tax money.

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Automatic Signal Systems Reduce Number of Traffic Officers

SIX of fifteen cities in New York State where electric traffic signals have been installed have already been able to reduce the number of traffic officers on duty. Two others expect to do so as soon as the public becomes sufficiently familiar with signal-controlled traffic. Two cities were able to remove men from corners where signals have been installed and place them on duty at certain times during the day at school street corners, or for parking regulation duty in congested sections.

Kingston, among the five other cities, has installed signals only at particularly dangerous locations, and under conditions dissimilar to those in the average city. Gloversville and Salamanca have each installed but one light, so far, with no expectation of its replacing traffic officers. In Newburgh, only one of the ten lights installed is at an officer-controlled corner, and that is a corner where there is particularly heavy left-hand-turn traffic.

There is no indication of disappointed expectations on the part of any of the fifteen cities, according to the recent report of the New York State Bureau of Municipal Information on "Reduction of Traffic Officers by Installation of Traffic Signals," upon which the above statements are based. On the contrary, several cities express unqualified enthusiasm for results already accomplished through the installation of automatic traffic-control systems.

From Little Falls:

"After personal investigation of our new traffic-control system, I cannot speak too highly. I feel proud to recommend it to you. It is very gratifying to note the wonderful change in our traffic since we have installed this ideal system on the main thoroughfares of our city. This addition has met with the approval of both the city officials and the public. It has reduced three of the traffic officers and has reduced our traffic accidents fully eighty per cent. I should like to see every dangerous street intersection of our city equipped with this good traffic-control system."

Rochester Reports:

"We find that the traffic signal is a great benefactor both to the motorist and the traffic policemen. The city of Rochester is rapidly installing more of them in outlying districts at dangerous intersections. These signals are controlled by individual motors which are started at 7 a.m. and turned off at 11:30 p.m. by officers in the precincts where they are located. In this way the motor is given a much needed rest."

And from Mount Vernon:

"Our traffic light system comprises twenty-six signal lights. These lights are in operation sixteen hours daily and were formerly manually operated from three booths, which method required six traffic officers (two officers per booth) daily. Recently we installed an automatic control unit in two of these booths, thereby relieving four officers for patrol duty, and this change meets with the approval of all, particularly with motorists, as the automatic unit plays no favorites. In case of emergency, such as unusual congestion, approach

of fire apparatus, etc., it is still possible for an officer to manually operate the signals. The fact that we do not allow a right-hand turn against the red light helps to make the services of a traffic officer at these intersections unnecessary."

Poughkeepsie and Niagara Falls:

Poughkeepsie has reduced the number of officers from six to two.

"Both of these are on congested corners, and stand in the street only during the hours that traffic, both automobile and pedestrian, is heaviest during the day."

In Niagara Falls, no traffic officers are officially appointed, patrolmen being designated for that service as occasion arises.

"This city has in use a traffic-signal system advantageously located at street intersections, which has been very effective in controlling traffic. Cases of intentional disregard of the signals are comparatively rare."

These accounts are fairly representative of the sentiment expressed by the fifteen cities as a whole.

Guarding the Health of Policemen and Firemen

A HIGH standard of fitness has been set up for the guardians of public safety in Philadelphia and is being maintained through the work of the Chief Surgeon of the Police and Fire Bureaus, Dr. Hubley R. Owen. Since the publication of an article in THE AMERICAN CITY describing the methods and facilities of the health work of these departments,* the satisfactory results have continued and broadened.

The second physical survey, made in 1924, included every member of the police and fire service. Those who were found not capable of doing active street duty were placed on a list designated as "capable of doing special or detail duty." This list was submitted to Inspector David McCoach, in charge of welfare work, and from it he details men to light duty.

Disease prevention is, of course, one of the most important divisions of this work. In this connection it is interesting to know that last fall more than 2,000 members of the Bureaus were inoculated against influenza.

The X-ray apparatus in the Chief Surgeon's office is used in dealing with all suspected cases of bone lesion. Since the installation of an Alpine lamp, on April 26, 1926, more than 1,000 cases have been treated. Time and again, Dr. Owen has recommended a medical ward of twenty-five beds in the General Hospital, but it has evidently been impossible for those in charge to grant this request in its entirety. He has, however, been promised a sufficient number of beds to care for the members of the Bureaus in the wards of the new Philadelphia General Hospital, which will be completed within the next few months.

At the present time there are the following salaried surgical and medical workers: 13 district surgeons; one assistant surgeon to Dr. Owen, Dr. William C. Ryan; one assistant surgeon, Dr. Charles E. Bricker, who is assigned to work at Central Station; one internist, Dr. Mitchell Bernstein; one eye specialist, Dr. John Forst; one nose and throat specialist, Dr. William Moore; one neurologist, Dr. Michael Burns; and one mechanotherapeutist, who has charge of the baking and electrical treatments—Mr. Sullivan. Drs. Ryan, Bernstein, Forst, Moore and Burns assist Dr. Owen in the care of the patrolmen and firemen. The other surgeons render medical treatment to prisoners, call upon the members of the two Bureaus when confined to their homes because of illness or injury, and examine drunken chauffeurs, narcotic habitués, alcoholics, etc.

The offices of the Medical Division of the Department of Public Safety, located at Broad and Spruce Streets, are believed to be second to none in equipment.

CLINTON ROGERS WOODRUFF.

*February, 1923, page 127.

City Dump Transformed Into Playground for Colored Children

"CIVIC VIRTUE AWAKE" depicted allegorically holding in hand a wand the touch of which transforms chaos and desolation into scenes of ordered beauty and vital usefulness, might appear sentimental and even melodramatic. And yet some such conception is inevitably suggested by public activities afoot nowadays in some American cities. A notable instance is to be found in Charleston, S. C. Hitherto, an appreciable part of the small colored population, even as the children both white and colored, of cities elsewhere, have been forced to take their recreation in the form of dangerous street play. Only recently, the Harmon Foundation of New York City, sponsor of more and better playing opportunities for American youth, signified its willingness to contribute $2,000, under certain conditions, towards remedying this situation by the purchase of land for a playground in the colored section of the city. Charleston officials welcomed the Harmon aid as offering them opportunity to purchase and reclaim a waste tract in that section. At a recent meeting of the City Council, the Harmon offer was formally acted upon and plans were perfected for the development, equipment, and proper policing of the future playing place. This means that an unlovely and somewhat discreditable expanse long known as the President Street Dump, deeded first to the Harmon Foundation, and redeeded to the city, is at once to be converted into a 12½-acre playground to which the people of the city will be able to point with pride. This former "dump" is to function "in perpetuity" for the promotion of the happiness and general welfare of Charleston's colored children.

But the small colored gentry are not to be the only citizens of the city to profit by new playing places. Nor is the President Street Dump the only disreputable spot there in immediate process of "conversion." A municipal stadium and athletic ground is well under way. It will provide for the city a long-needed center of outdoor recreation; but doing this and opening up a beautiful park extension will be only half of its mission, the other half of which will be the "reform" of an obnoxious garbage dump and a public burying-ground. Incidentally, an undesirable public baseball park will be eliminated in the process.

Municipal Golf—Its Relation to Park Land Acquisition Policies

By H. S. Wagner

Director, Metropolitan Park Board of Summit County, Akron, Ohio

OF all the differences to be noted between public affairs of 150 years ago and of today, none is more marked than the complete change of policy in regard to land. Public authority then accepted as of vital necessity to the country's prosperity the breaking-up of large land holdings, and the distribution of the land among the largest possible number of individuals. Today, certain public bodies, notably national, state, and local park authorities, are sorely pressed to acquire and to hold for the common use and enjoyment of the public for all time, some of that very land.

Further, the most pressing problem of park commissioners is the acquisition of park land. In their travels, in their scrutiny of written matter, in their attendance at park conventions, the chief question of park commissioners everywhere has been, and will continue to be, "How did this or that community acquire its park land?" This statement is not intended to minimize the importance of park construction and park maintenance. Not by any means. But land acquisition is the first duty of the park commissioner and one upon which his other functions are dependent.

The specific purpose of the present paper is to present some of the possibilities of establishing public golf courses as one of the readiest methods of acquiring public park land. Golf is one of the national pastimes that call for participants rather than spectators, and it thereby develops a quality of interest on the part of the devotee that cannot be equaled among baseball or football fans.

Recent estimates show that there are about 4,500 golf courses, and over 4,000,000 players in this country and in Canada. There is little doubt that a large majority of those players use municipally owned or privately owned fee-system courses. As the popularity of the game increases, more and more converts to the pastime will develop from the masses of people who cannot afford the relatively large expenditure that membership in private golf clubs involves. It becomes clear, then, that park commissioners everywhere will be faced more and more with the alternative of building municipal golf courses or permitting private capital to provide the same facilities through the medium of the fee golf course.

For park commissioners to permit private capital to lead the way in the establishment of golf courses to be available at a moderate price to the player, is for them to lose one of the finest of opportunities to acquire land for park purposes. There is a close resemblance between the municipal course and the privately owned fee course, both as to facilities provided and as to cost to the player. With the superior chance of financing the purchase of land and the construction of the course on a moderately long-time basis which the municipality has over the private individual or corporation, there is little doubt that the public course should provide equal playing facilities at lower prices or better facilities at the same price.

There are many arguments in favor of municipal golf courses which appeal to park officials. There is their contribution of really valuable scenery to the park system along with the provision of greater recreational facilities. No other form of active play disturbs scenic beauty less. Perhaps this is the greatest asset of municipal golf in the eyes of those most concerned by what is sometimes termed "raids" made upon the park landscape by most active forms of recreation. Golf is the common meeting-ground of esthete and athlete. Even the most ardent golfer will admit that if you should remove "the scenery"—the rolling hills, the trees, and the naturalistic rough—and leave only the finest of fairways and the most perfect

Akron's Municipal Golf Course

Because of the use, as the front cover picture for this issue, of a view of Akron's municipal golf course, The American City has asked the Park Board Director of that city to abridge for this magazine a paper which he presented at the last annual convention of the American Institute of Park Executives and American Park Society. The accompanying article is the result.

Akron is exceptionally fortunate in having had the problem of land acquisition for a municipal golf course solved for it by a gift to the city of 180 acres of land for this purpose by one of its public-spirited citizens, J. Edward Good.

of greens, the game would lose much of its attraction.

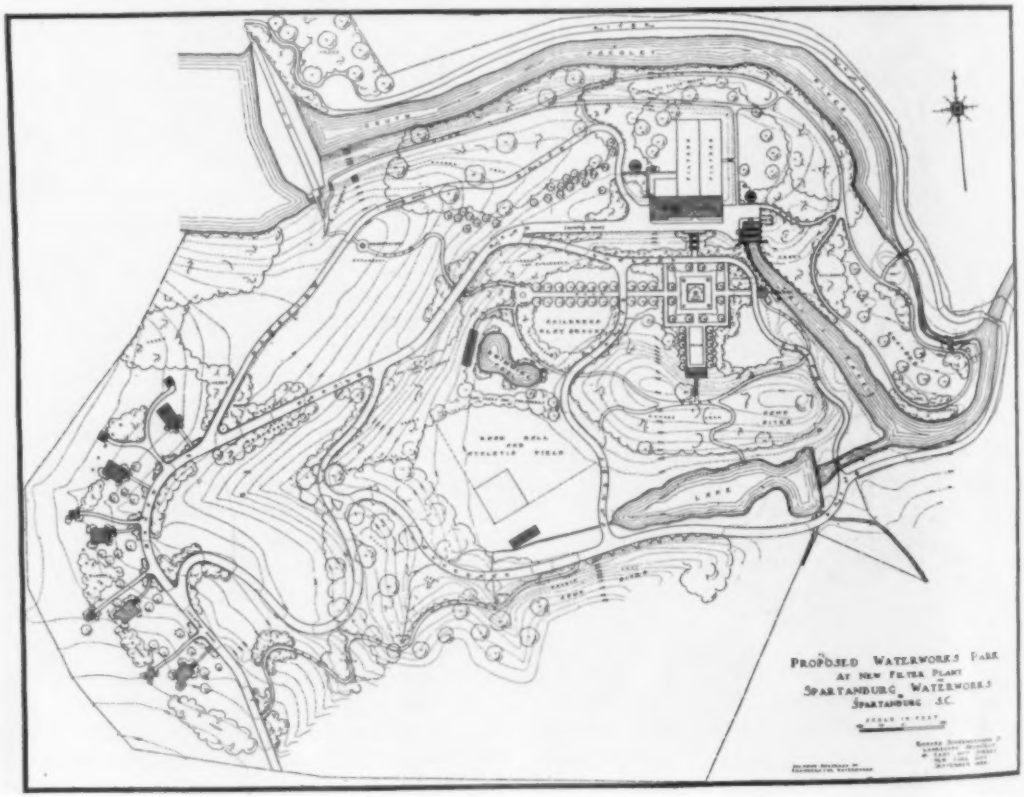
Again, golf brings to park bodies that most appropriate and useful instrument, the principle that "he who gains the benefit shall pay the bill." Municipal golf on a free basis is practically unknown, and in justice to those communities that boast of golf without charge, it may be said that their citizens are blessed with superabundant civic spirit. There is little question that, in days to come, the public at large must not be called upon to assume the cost of any form of public service which it does not itself, as a whole, enjoy. And, on the other hand, whoever partakes of publicly provided benefits of any kind must be expected to pay therefor. It is recognized that some part of the cost of providing public golf courses, as in the case of any other municipal service, whether it be a water or sewerage system or some other service, should be borne out of funds secured at large, paid by citizens as a token of the privilege of using that facility at their pleasure; but the larger portion of any public expenditure should, it is believed, be borne by those who benefit.

Rural Park Planned at Water-Works

By Richard Schermerhorn, Jr.
Landscape Architect, New York

UPON the completion of the new waterworks plant for Spartanburg, S. C., including a large dam and 1,250,000,000-gallon reservoir, a filter plant and a powerhouse, there remained to be done, in addition to the renovation of the worked-over area, a certain amount of grading, earth removal, road building for convenience of access, and treatment of bare open spaces around the buildings.

In view of these necessities, the Water Commissioners considered the idea of going a step further and securing the greatest advantage that the land offered them, making the most of the very picturesque landscape characteristics. It was evident that the new structures, although excellent in themselves and fulfilling every engineering purpose, were out of harmony with their natural surroundings. It was also felt that practical use could be obtained from this one hundred or more acres of city-owned prop-



erty, and that the citizens of Spartanburg who had paid for the water-works were also entitled to enjoy the grounds about them. Although situated some distance from Spartanburg, they are of easy access by automobile. The land possesses many of the attributes of a rural park, which should be left more or less as nature has formed it, but should still be available for the use of the people, for camping, picnicking and the general benefits of the woods and out-of-door life. It was decided to have a landscape plan prepared to carry out these ideas, and the present writer was engaged for this purpose.

First attention was given to a planting plan in connection with the buildings. Such a plan for the filter-plant grounds was made in detail, and a considerable amount of this planting has already been done. Included in this is a formal garden beginning at the foot of a terrace south of the filter plant and laid out on an axis with the main entrance to the building. This contributes to the individuality of the whole plan and forms a transition feature between the precise lines of the building group and the informal landscape. The general planting scheme that has been developed for the whole area provides for reforestation to a considerable extent. Special care has been used in the planting already done to select trees and shrubs suitable for the climate. While many native ones will be used in the general plantations, great care has also been given to the selection of varieties that will produce the utmost of scenic effect. Full-blooming shrubbery will be used in the more cultivated sections.

As only one main road originally penetrated the park site, a series of roads has been planned to take care of practical needs of the place and open up the park for general public use. The variation of topography provides opportunities for making these roads unusually attractive in their landscape characteristics.

The possible uses of this area by the people have been studied, and a swimming pool, athletic fields and general camping sites have been provided for. There is also the possibility of an artificial lake in a lowland section, fed by several brooks and springs.

It is not expected that this work will be carried out all at once, but will be the result of a gradual development. Spartanburg will thus come to possess a rural park decidedly unique in character, of great picturesqueness, and one that affords a particularly agreeable spot for recreation purposes.

Control of Algae Growths in Outdoor Swimming Pools

By Chester Cohen

Assistant Sanitary Engineer, Texas State Board of Health

DURING the summer of 1926 a large open-air swimming pool located at Texarkana, Texas, experienced considerable financial loss due to the public's aversion to bathing in green-colored water.

This pool, operated on the fill-and-draw plan, has a surface area of about 250,000 square feet, and a capacity of some 2,000,000 gallons of water. It is filled by pumping from shallow wells—ordinarily of satisfactory sanitary quality and usually a very clear and sparkling water. The pool was constructed so as to encompass a spring-fed area. Between complete emptyings and refillings the water is constantly displaced by these inflowing springs piped into the pool through the concrete floor.

During the early part of the summer the pool became seeded with a growth of single-cell or colonial green algae, which, of all algae forms, are most likely to give a distinct and even heavy green color to the water in which the organisms are developing and multiplying.

Had the pool been smaller and the water less expensive to pump, it might have proved feasible to waste the water more frequently, clean the sides and bottom of the pool and swab with a solution of copper sulphate prior to refilling. This being an undesirable procedure economically, it was preferable if possible to treat the water and avoid the waste.

The use of ordinary doses of copper sulphate as an algaecide had been tried without success and with such varying results as:

1. Low or insufficient dosages which had not resulted in any material benefit.
2. The deposit of a flocculent precipitate on the bottom of the pool, which, when disturbed by the splashing and swimming of the bathers, gave the water a turbid appearance.
3. Excess dosages which resulted in dyeing the water a deep blue to green color.
4. Unequal distribution of the algæcide in the various parts of the pool.
5. Complaints from patrons of the pool concerning the "excessive doping" of the pool.

Since it had already been planned to use

chlorine for control of bacteria in the pool, it meant only a slight increase in chlorine dosage to determine its value as an algaecide. Assuming that for bacterial control the pool water would require from 0.3 p.p.m. of residual chlorine, it was determined to increase the dose and secure 0.6 p.p.m. for the combined purpose of bacterial and algae control. The chlorine was applied in the form of a hypochlorite solution from two barrels placed in a rowboat—the hypochlorite solution being fed through an ordinary hose (about one-half to one foot below the water surface) as the boat was being rowed around the pool.

At the time of this first treatment the pool water was distinctly green, on account of the algae growths. The treatment resulted in a destruction of the organisms and a clearing of the water within a short period of time. The residual chlorine, of course, had entirely disappeared by the following morning. Two weeks after this treatment a regrowth of the algae forms was noted, although the green color was not as marked as before. At this time another chlorine treatment leaving 0.8 p.p.m. residual was given, again resulting in a marked clearing of the colored water and a destruction of all algae forms, especially those clinging to the walls of the pool.

The cost of a treatment in which chlorine is applied intermittently at increased rates to secure 0.6 to 0.8 p.p.m. residual chlorine represents so slight an additional expense over the cost of regular chlorination for bacterial control, that its use as an algaecide seems practical. Reseeding and regrowths of algae will, of course, take place in course of time, and must be checked or retarded before they have assumed large proportions. The presence and magnitude of growth can best be observed through microscopic analysis, rather than by waiting for visible physical changes in the water.

Algae prevention is naturally to be preferred to algae destruction, and it appears that systematic chlorination with increased dosage at intervals will be of great benefit in algae prevention.

Municipally Owned Hydro Plant in Norway

MUNICIPAL HYDROELECTRIC PLANT RECENTLY CONSTRUCTED BY THE CITY OF STAVANGER, NORWAY

This plant is located at Florli on the Lysefjord, about 67 kilometers from Stavanger, and is said to be the most modern equipment of its kind in Norway. The plant consists of two water turbines of 6,000 horsepower and one of 7,000 horsepower direct-connected to generators producing current at 5,000 volts. A transformer for each of the machines steps this current up to 50,000 volts for transmission to Stavanger. The water reservoir acting as a forebay is situated on a mountain 730 feet above the plant, and the turbines are supplied with water through a welded-steel high-pressure pipe line 1,620 meters long, 950 millimeters in diameter at the intake, and 600 millimeters at the turbine. This pipe line is said to be one of the largest in the world. The American City is indebted to John James Meily, American Consul, Stavanger, Norway, for this photograph and information

Is Your City Worthy of Its Schools?

Are the Civic and Social Conditions Surrounding Most of the Children in Your Community Such as to Breed Good Citizenship or Criminality?

"*SOMETHING there is in cities that defrauds a child.*"

This single poetic line was the text selected by Dr. Henry Turner Bailey for his address, "Outwitting the City," which was an outstanding feature of the recent Seventh Annual Conference of the Progressive Education Association in Cleveland. Dr. Bailey, widely known as Director of the Cleveland School of Art and of the John Huntington Polytechnic Institute, defined "defraud" as meaning, according to the dictionary, to deprive of some right, interest, or property by a deceitful device; to cheat; to overreach; and elaborated his theme thus:

"The deceitful device in this case is our present social order, which cheats the child and overreaches him to such an extent that he becomes atrophied in character. The present social order allows big business to crowd mills and factories so close together that they poison the air and load it with soot to such an extent that trees and shrubs, flowers and green grass die lingering deaths and children are stunted in body and warped in mind. The present social order allows greed to force people to live under crowded, filthy, and immoral conditions never paralleled even in the animal world. It deprives children of their natural rights to fresh air and sunshine, the beauty of the earth and the splendor of the sky. . . .

"There are no seasons in the industrial sections of our big cities. The smoke and grime blot out the sunrise and the sunset, and the electric lights eclipse the stars. The vast purple vault of the clear night sky, 'all throbbing and panting with stars,' is without parallel as a revelation of God in nature. It has thrilled the young, inspired poets, confirmed the faith of saints, and brought sinful man to his knees throughout human history; of all this the city child is defrauded by the city. Spring, summer, autumn, and winter, the downtown streets of our big cities look the same, except for a few hours after snow. . . . .

"The city robs children of their native interest in the normal activities of the natural world, in the elements, in vegetable and animal life, and basic human life. It robs them of that elemental form of property—human wealth, the riches got by experience with nature at first hand. This seems a rather sweeping indictment, but the truth of it appears when a comparison is drawn between the knowledge and skill of the previous country-bred generation and those of the present city-bred generation.

"What has the city to offer in the place of those wholesome, fundamental, educational, character-building activities of life in the country? It offers early familiarity with depravity and crime, the movies, the other entertainments which may be had for money, street and sandlot sports, dancing, automobile driving, the radio, craps, cards, pool and billiards, and the salacious magazines and superheated novels and tales of adventure sold at the news-stands. I do not forget the public schools, the churches, the social centers, the branch libraries and benevolent organizations, all of which help to counteract the unfortunate effects of slum conditions; but the net results for year-round dwellers, after all, are not ideal, to say the least."

This is the situation. What is the remedy? Progressive Education. And Progressive Education, as Professor Bailey voiced its ideals before this notable gathering of professional educationalists, stands for these things (among others): It stands for country experiences for all children, and teaching which shall give them a love for and familiarity with nature. It stands for the beautiful, and the cultivation in all children of the artist attitude toward life. It stands for the recording of natural beauty by such classroom work as drawing and color-

Outwitting the City

Progressive Education aims to train a generation so much in love with the natural world, so enamored of beauty in nature and the arts, so efficient in producing excellence everywhere, so vividly imaginative, so thoroughly persuaded of the importance of a right social order, so disciplined in mutual helpfulness, so exacting in self-development for the common good, that our present unfortunate, defrauding city conditions will be wiped out, and every part of the habitable earth will be favorable to the growth and development of all children, that closer link between us and the crowning race.

HENRY TURNER BAILEY

The school cannot, of course, take over the whole burden of what the home and other social institutions or individuals must provide. It cannot be made a dumping-ground for everybody's responsibilities. But it can enlist the intelligent cooperation of these outside agencies on the basis of the understanding it has gained of the needs of the child, and where parents or other responsible agencies are unwilling or incapable of doing their part, it can seek, as a specialist for society, to set up the most practical program that can be carried out under the circumstances by the cooperative efforts of all the other available and appropriate forces of the community, including itself.

HOWARD W. NUDD

ing, and for the embodiment of the elements of beauty into all school activities. It stands for the widest utilization of architecture, sculpture, and painting, music, art and the drama as educational means. It stands for a healthy social life among children; and for supervised self-activities in the daily life of the individual child.

And Are Your Schools Training Citizens for the Finer City That Might Be?

The school has a fundamental relation to social work. It is a relation which will be fully realized only when the educator and the social worker are enabled to cooperate on common problems on the basis of mutual understanding and in ways which are suitable to their respective responsibilities. These two problems were given particular emphasis by Howard W. Nudd, Director of the Public Education Association of the City of New York, at the recent annual meeting of the National Conference of Social Work, at Des Moines. Professor Nudd says:

"The modern school cannot go it alone if it is fully to discharge the great responsibility which society has placed upon it. It cannot assume, as in days gone by, that, educationally speaking, the child goes into a coma when school closes in the afternoon and comes out of it the next morning when school opens again. It must consider the whole life of the child and not that portion of it only which is spent within its walls, for during the intervals between the closing and the opening of school the child may be subjected to influences which by their emotional appeal alone may be far more potent in a destructive way than anything that the school has been attempting to do constructively."

Certain of the added responsibilities which modern society is placing upon the school may be fulfilled by more adequate programs and programs based upon more intelligent thought for the whole child carried on within the classrooms of the future. Already, educators in various parts of the country are feeling the need of such broadening programs, and are working to achieve them.

"It is significant, however, that most of this effort is being devoted to school practices which are based upon the traditional conception of the school as an agency to impart facts and certain elementary skills. This is a perfectly proper function of the schools, of course, but it does not, by any means, include all of the factors which must be taken into consideration in furthering the welfare of the child. For, the school may succeed in making the child a perfect penman, only to turn over to society a skilled forger. The school may succeed in making the child an adept in mathematics, only to turn over to society an expert embezzler of funds. The school may succeed in making the child fluent in reading, only to increase the community's quota of enthusiasts for magazines which delineate droll stories and true confessions. The school may succeed in making a child skillful with tools, only to turn over to society a more efficient burglar."

But Education already requires, and is going to require, increasingly more from the classroom than the impartation of fundamental bodies of information and skill. Education is requiring that the child must emerge a socially effective human being.

"It requires the development of the emotional life of the individual in order that his attitude toward himself and his fellows will lead to wholesome and constructive uses of these necessary instruments of skill and insight. While the school is making progress in grading its children more intelligently and in adapting its methods of training in these traditional bodies of information and skills to the abilities of the children, it has made far less progress in understanding the emotional life of the child, and in developing his attitudes and traits of character. Indeed, the school may be so intent upon pressing the child to achieve perfection in these traditional phases of school work that it may generate attitudes of resentment and antagonism which will largely offset the usefulness to the individual and society of the work it has done with so much painstaking effort."

Glasgow's "Common Good Fund"

FOR some 350 years the city of Glasgow, Scotland, has been accumulating what is known as the "Common Good Fund." As the story is told in the British *Local Government News* for April, 1927, the original nest-egg was the proceeds of the sale of lands belonging to the city. It is understood that this fund is not subject to parliamentary interference and restrictions. The definition of the fund is as follows: "The Common Good consists of such property and funds as are held by the magistrates and the council on behoof of the community, unfettered by any restriction as to its disposal, save conformity to common law and the promotion of the public weal of the burgh."

The assets of this fund amount to £10,000,000 and the liabilities to £9,500,000. To the assets must be added, however, some £4,000,000 which have accrued from the surplus of the tramways. The tramways are valued at over £7,000,000.

Some of the expenditures which have been met by government cooperation from this fund are as follows: financing of coast excursions for poor mothers and children, maintenance of city churches, grants to hospitals and infirmaries, colleges, orchestras and concerts. In the period of unemployment the fund is used extensively to pay the rents of families in distress. Assistance has been given in a thousand other directions. In general, the fund has been used to further municipal culture, education and charities.

Glasgow is not alone in having the disposition of money of this sort and for these purposes. Other Scottish towns are similarly provided with funds for the benefit of the community.

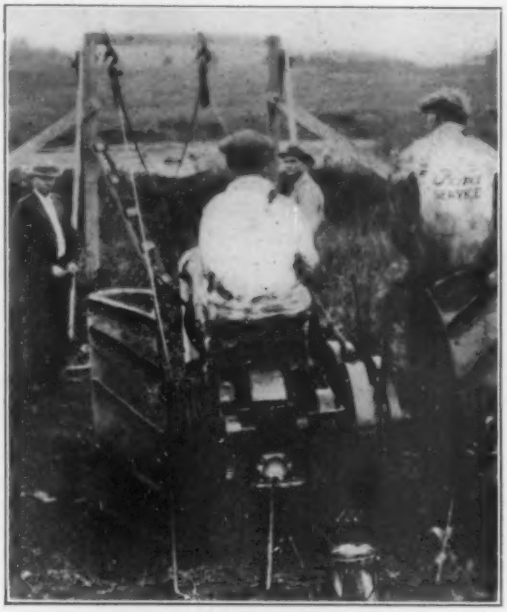
Removing Silt from Reservoir by Means of Portable Dragline

The City of Cordell, Okla., Handles Difficult Job Economically

THE problem of removing sediment from the lake from which the city of Cordell, Okla., draws its water-supply was solved in a novel way. For years there had been a gradual deposit of sediment in the lake, which had been allowed to continue without thought of the loss of storage capacity. During the summer of 1926, it was realized that the reduction in storage capacity was becoming serious. The sediment is a very fine river silt, easily transported by water. At the deepest places in the reservoir, the deposits were from 12 to 15 feet deep.

The lake could be drained, but it was impossible to drop the level as low as the bottom of the sediment and still have any water left in the lake. The problem was discussed with several contractors, but no one was willing to attempt the work except at great expense to the city.

At the state fair in Oklahoma City, Okla., the city officials saw a double-drum White tractor hoist rigged up with a Sauerman Crescent scraper for dragline work by the Ryan Equipment Company. They decided that this was the outfit that would solve the problem in Cordell. When the outfit arrived and was set up, it was found unnecessary to use the teeth on the scraper bucket, as, without the teeth, it would dig and load itself in the silt. The lake was



TRACTOR HOIST AND FRAME AS RIGGED FOR SERVICE
Note bucket in center of reservoir

SCRAPER REMOVING SILT FROM RESERVOIR AT CORDELL, OKLA.

about 450 feet wide at the point where work was begun, and the deposit of sediment extended for a distance of 800 feet upstream. The White tractor hoist, made by the Oklahoma Engineering and Foundry Company and mounted on a Fordson tractor, was set up on one side of the lake and a bridle cable stretched along the other side. A frame was built in front of the tractor to keep a fair lead for the lines. Then the silt began to move.

The city keeps a man at the lake to take care of the filters. Since there is enough fall between the lake and the city to provide a gravity system, this man does not have very much to do. He was placed on the tractor to remove the silt. The only cost to the city was the initial cost of the equipment and the operating expense of the tractor.

The city officials are also planning to use this outfit in straightening a creek through a city park, building a swimming pool, clearing out trees and brush in the park, and setting poles and pulling wire for the municipal power and light department.

Value of Checking Pavement Thickness and Concrete Proportions

By C. M. Hathaway

Engineer of Construction, Division of Highways, Department of Public Works and Buildings, State of Illinois

METHODS of construction, details of best practice, plant and equipment arrangements and production methods have been carefully standardized during the past few years, and as a result we have developed economy in operation and satisfactory accomplishment. What have we developed in the concrete itself?

Full Thickness Necessary

Let us first consider the matter of quantity —the securing at all times of a pavement of full thickness at all points. Early core drill tests indicated that the average road undoubtedly had the full amount of concrete per mile, but the individual cores plainly demonstrated that there were frequently spots and probably sections of some length where the pavement was less than standard thickness. In other cases, it overran.

The Illinois pavement is designed for transverse strength, and since strength is dependent upon the square of the depth, it is readily apparent that if the pavement at any place is deficient in thickness, that point is the critical section. Even one-quarter of an inch loss in thickness will obtain a pavement only 92 per cent full strength, and a one-half-inch deficiency will show an 18 per cent loss, or only 82 per cent strength.

In 1925 the Division of Highways of Illinois inserted in the specifications a paragraph on pavement thickness which provided in brief as follows:

1. No payment will be made for any excess in thickness of pavement.
2. Sections deficient in thickness by an amount greater than one inch shall be removed and replaced with pavement of the specified dimensions at the entire expense of the contractor.
3. When the average thickness obtained from field determinations or cores is less than the thickness shown on the plans, the unit price named in payment shall bear the same ratio to the contract unit price as the square of the average thickness of the pavement as actually built bears to the square of the thickness of the pavement specified on the plans.

That the contractor might know at the end of each day's run the exact thickness of the pavement laid, there was developed a daily "pavement thickness reading" made as follows: Cross-section readings are taken at a given point on the subgrade before the placing of the pavement; then, after the concrete is laid and set up, readings are taken on the finished surface at the same cross-section and identical points. At least three sets of readings are taken daily and a post-card report is sent each day to the Engineer of Construction at Springfield, also one to the district office. Each job is carefully watched at headquarters, and any deficiency in thickness is immediately called to the attention of both contractor and resident engineer.

Excess Thickness

This plan introduced another feature, namely, excess thickness. Anyone familiar with construction practice knows that with the present methods of checking subgrade back of the mixer, there are always found places where the grade is slightly low and where extra con-

crete will be required. The Illinois practice also insists that at any point where the templet scratches, the engineer shall require the subgrade to be cut down to grade. A careful study of what could be obtained under practical working conditions indicated that excess thicknesses from ¼ to ¾ of an inch were not unusual, but that any excess over ½ of an inch was generally carelessness on the part of the contractor.

Checking Thickness

As a final check on thickness, each section of pavement is cored throughout its entire length before the final estimate is paid. The scheme of taking cores provides eight cores to the mile at regular intervals and definite points on the cross-section. At the same time a core is taken, a reading is taken at each edge to determine edge thickness.

To check the accuracy of pavement thickness readings, it was arranged that every other core should be taken at the exact spot where a pavement thickness reading had been made. At the end of the 1925 season, a comparison of 1,200 readings showed an average variation of only 0.05 of an inch. A similar check during 1926 indicated practically the same results. Therefore, we feel safe in using the daily pavement readings as a criterion of the thickness obtained.

During 1925, 115 jobs were cored and 4,060 cores taken on 606 miles of pavement. The average thickness of these cores was 6.4 inches, that is, the average pavement cored during the year 1925 was approximately ⅜ of an inch, or 6.3 per cent over standard thickness. This figure, of course, is for the 6-inch portion of the pavement and does not take into consideration the thickened edge. The average edge readings for 1925 indicated a thickness of 9.13 inches. During the year 1926, 282 jobs were cored and 6,574 cores taken on 544 miles of pavement. The average thickness of these cores was 6.5 inches, that is, the pavements for 1926 were of approximately ½-inch, or 8.3 per cent over standard thickness. The average edge thickness for 1926 was 9.15 inches.

From two years' results I feel that we have definitely demonstrated that the contractor must anticipate 8 to 10 per cent extra thickness even with the most refined methods of construction. With the present methods of subgrade construction, hauling on the subgrade, and checking subgrade with a templet, we are bound to exceed standard thickness in some places. Certainly, the contractor must anticipate this 10 per cent in making his bid, and the state, on its part, must appreciate this excess and figure it in the estimate. To my mind, the only way that this percentage of excess can be lowered or eliminated is to allow a tolerance in thickness, say between 5½ and 6½ inches, which would result in a maximum low limit of 82 per cent in the strength of our pavements. On the other hand, when we consider that a 10 per cent excess thickness increases the strength 21 per cent, it is undoubtedly good economy to continue the present practice and be assured of a pavement from 100 per cent to 121 per cent standard thickness.

With present methods of construction, I feel that there is no reason for running an excess thickness over 10 per cent.

Control of Proportioning of Coarse Aggregates

A careful study of the proportioning of aggregates in a concrete mix has always been regarded as an essential of good construction practice. To my mind, it is one of the prime requisites controlling quality. This idea is an accepted fact among all engineers and for the past several years the subject has been given very thorough investigation by research laboratories and specialists in concrete.

Any engineer familiar with pavement construction knows that the yield or volume of concrete may actually vary between somewhat wide limits under actual field conditions. The reason for this lies in the proportioning.

The original method of proportioning followed out by the Division of Highways is probably similar to that of other highway departments and may be outlined in brief: The coarse and fine aggregates conform to the gradation as outlined in the specifications and were either inspected at the quarry or on the job. Trucks or industrial cars were loaded from the storage bins, loose measurement, and, without any more accurate measurement than a line painted on the truck, gaged by a common laborer. It was assumed that for aggregates of a gradation meeting our specifications, there would be approximately 40 per cent voids, and it was estimated that a cubic yard of concrete would require 1.61 barrels of cement. The only ingredient which was measured with accuracy was the cement.

In 1925 it was realized that more accurate proportioning was necessary to obtain an accurate volumetric measurement. In 1923 we had eliminated the old "hand and guess" method of measuring batches and there was substituted the automatic measuring hopper which definitely controlled the unit of measurement.

Now it was realized that the batch which was being loaded into the trucks or industrial cars was a measurement of uncertain volume,

and steps were taken to develop a method whereby the quantities of aggregates as measured should be on a standard compacted volume basis. This was done by placing a measuring box in the truck, and filling this box with the correct loose volume of aggregate. The truck was then run around approximately the same distance that would be obtained in the average haul for that job and the amount of compaction noted. The batchers were then set for compacted volume. This method was used for both coarse and fine aggregates and has been the practice during 1925 and 1926. To check up this test, laboratory investigations were carried on at the same time by the use of a "bulkmeter," a device which measured compaction and voids by water displacement.

In so far as coarse aggregate is concerned, the results by the two methods checked closely. Therefore, from two years' results we feel in position to state that when dealing with coarse aggregates from the same quarry and of standard gradation, a fixed percentage of material can be added to the loose-measurement volume and there will result the correct compacted volume. Therefore, knowing the source of our coarse aggregate, this correction can be made in the field without further use of the truck test.

Studies of Fine Aggregates

In the case of the fine aggregates, however, the truck test showed some compaction, but the amount followed no given rule nor did it check at all closely with the results obtained from the bulkmeter. I am satisfied that this is due to the bulking of sand. It is a known fact that any sand as shipped, even after standing in a storage pile, contains a certain percentage of water, which will cause bulking. Our laboratory investigations have definitely determined that when sand runs from 2 to 6 per cent moisture, we may anticipate a bulking running as high as 20 per cent; that with a water content from 6 to 17 per cent, this percentage will decrease, and when over 17 per cent of water is present, there will be no bulking. Therefore, any method of figuring compaction of the fine aggregates in the field must include a determination for bulking and it will be necessary on every construction job to make a frequent test of representative samples of sand from the stockpile or from the car, first, to determine the amount of bulking, then, with this figure obtained, to determine the percentage to be added to the loose volume to secure a standard compacted volume. Such a test can be easily made by the resident engineer or plant inspector as required.

Computing the Cement Factor

It was next deemed desirable to determine the yield of concrete and from it to compute the cement factor. Several schemes were tried out in 1925, and the method finally adopted and used since is essentially as follows: First, mark off a unit pavement length, say 100 feet; take subgrade cross-section measurements at fixed intervals transversely and longitudinally; the mixed concrete then is placed in this unit of length and the number of batches counted. After the pavement has set, cross-section readings may be taken at the identical section and points and the resulting volume computed. Finally, knowing the number of batches of 1:2:3½ concrete actually used, it is easy to compute the yield and the cement factor.

From figures obtained by the laboratory extending over a period of several years, it has been definitely proved that the percentage of voids in the aggregates ordinarily used in Illinois construction may vary from 30 to 45 per cent. A variation in yield and a change in cement factor may therefore be frequently anticipated. It is evident that the only way to control the percentage of voids is by a careful control of gradation, which may be done, and should be done, in case the resulting concrete is found not to have proper workability. This study of gradation should follow in line with the other accurate methods of proportioning. It can be done by a careful inspection at the plant and by a study of the sources from which the coarse and fine aggregates are obtained, giving due consideration to their characteristics and individual gradation and the results when combined.

The value of control in proportioning has been demonstrated definitely by the tests made on cores taken from pavements laid during the past two years, these cores in many instances showing an increase in strength of 40 per cent over the average figure previously used.

Other Factors in Proportioning

There are three other factors which we hear frequently mentioned in connection with proportioning, namely, proportioning of aggregates by weight, the inundation method, and the water-cement ratio. I will mention these but briefly in this article, as each in itself is a proposition of some magnitude.

A number of states have adopted the method of proportioning of aggregates by weight, and I am satisfied that in a few years this will be the standard practice adopted by all state highway departments. It has many distinct advantages from the standpoint of the engineer, and I feel safe in stating that the contractor would work much benefit by its adoption from

the increased economy and accuracy in purchasing concrete aggregates.

The inundation method is designed primarily to take into consideration the bulking of sand, and appears to have worked out very satisfactorily for stationary units. I do not see a practical application of this method to the average road job where the contractor is hauling his aggregates dry from a central proportioning plant to the mixer.

After studying the matter of water-cement ratio, I see difficulty in its practical application to the average paving job, but from another angle let us consider that we have a proper control of our aggregates in the mix as outlined above, and a definite control of the water going into the mix, and with these two items of control it would appear that we are actually obtaining a somewhat definite water-cement ratio in our every-day work.

In conclusion, what have we obtained in the matter of quantity and quality during the past two years? First, a correct measurement by pavement thickness readings, checked by cores, which insures a full pavement thickness at all times, quantity; secondly, a careful study and control of the proportioning of the concrete mix—the prime factor governing quality; therefore, the value of checking pavement thickness and checking concrete proportions.

ACKNOWLEDGMENT.—From a paper presented at the 1927 Short Course in Highway Engineering given at the University of Illinois.

Building a Park on a Garbage Dump

Sanitary Fill Proves Satisfactory in West Coast City

SANITARY fill is used in Portland, Ore., as a means of disposing of garbage and at the same time filling up some of the many deep ravines in that city.

The Greeley cut-off at Penn Street, Portland, adjoining land donated to the city for park purposes by A. Benson, is now being filled in this manner, as shown in the accompanying illustration. The gulch, formerly 60 feet deep, is being brought well up to street level. The garbage collection trucks and those belonging to private concerns which dispose of their own rubbish, deliver garbage and refuse to this point, where a Caterpillar Thirty with trailer scraper attachment levels off the refuse and packs it down solidly as it is dumped. The tractor and a crew of men then cover this refuse with a thin layer of dirt. In this way the fill is kept in a cleanly condition, although 90 per cent of the material used is garbage and refuse.

Since the Greeley fill is located at some distance from the center of the city, it has been difficult to obtain excavation dirt for covering the garbage. The dirt used has been taken from nearby hillsides, but the city recently negotiated for the property next to the fill, with the idea of grading down the hill and using the surplus earth.

Various types of equipment have been tried for spreading and packing the fill, but the Caterpillar Thirty with its 2-inch track and overlapping track shoes has been found best adapted for this work. The scraper attachment holds one yard of material.

It is expected that the project will be completed in about two years, when this made land will add another park to the city's credit.

CATERPILLAR TRACTOR BUILDING UP THE SANITARY FILL AT SEATTLE, WASH.

Undue Proportion of Streets Guarded Against in English Development

ONE mile from the center of York, England, an interesting development is taking place wherein a factor given special consideration is the proper relation of street length and arrangement to the total area and the number of home sites desired. The development is known as Clifton Lodge Estate and is under the direction of a small company called "Clifton Estate, Ltd." Mr. Barry Parker, Fellow of the Royal Institute of British Architects, has prepared plans for the development and contributes an article on the subject in the February, 1927, number of the *Journal of the Town Planning Institute*, of London. In the course of this article he says:

"Many people still apprise the merits or demerits of a scheme for laying out land in building sites by the number of sites for houses it provides per acre of land. These people lose sight of the fact that the number of sites per acre a scheme provides is of little importance economically in comparison with the length of road per house it shows. Except where land is very unusually expensive, its cost is an almost negligible factor in determining the costs of the houses built upon it.

"Subject to questions of situation and of supply and demand, the value of a small house is determined by what it has cost to build, the cost of the land on which it is built, and (more than by anything else) by the cost of the roads which afford access to it. And yet the prospective purchaser or tenant of a house, when estimating value for money, considers how many rooms he is getting, how large a garden he is getting, and everything in fact but that which concerns him most, which is the share which falls to him of the total cost of roads and sewers and of such services as gas, water and electricity.

"If prospective purchasers of houses would more frequently say: 'By the application of what is now known of the principles of site planning you could have secured that the length of road on this estate afforded access to many more house sites, and therefore my site would have been cheaper,' we should not now have the ignorance of principles of site planning which is sometimes shown in plans for estate development. . . .

"The fact is that if we only considered economy of development, we should develop from a civic center by means of roads radiating from that center, and by means of such roads only; that is, we should adopt only 'ribbon' development, and we should welcome the extraordinarily 'sparse' development and the abnormally small number of houses to the acre of land which would result from our doing this.

"We should never construct any short cross-roads, connecting main roads one with another, because such cross-roads never pay.

"But traffic and other requirements make cross-roads necessary, so we introduce them and accept the loss entailed thereby. . . .

"It has now been proved beyond question that the introduction of these extravagant cross-roads at intervals so frequent as to yield more than twelve houses to the acre is certainly unnecessary where land is not abnormally expensive, nor traffic requirements unusual."

Mr. Parker presents two diagrams, reproduced herewith, to illustrate the loss of "frontages" that occurs wherever a cross-road is introduced:

"On these diagrams the lengths of road which only afford a second frontage for houses which already front on other roads have been blacked in.

"It will be found that there are something over three miles of such frontages on Diagram 1 and something under two miles of such frontages on Diagram 2. Therefore, at the present costs of road construction, the roads on Diagram 2 will cost over £9,000 less than would the roads shown on Diagram 1.

"The use of the cul-de-sac is another means by which large savings in the lengths, and therefore in the costs, of roads may be made and by which given lengths of road may be made to afford access to a greater number of houses, which is yet far from being fully appreciated or understood. . . .

"The saving is the same, of course, whether these cul-de-sacs come opposite to one another or not. It holds good no matter what disposition or arrangement of cul-de-sacs is adopted. . . .

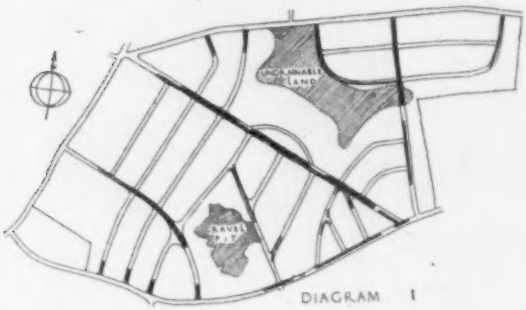


DIAGRAM 1

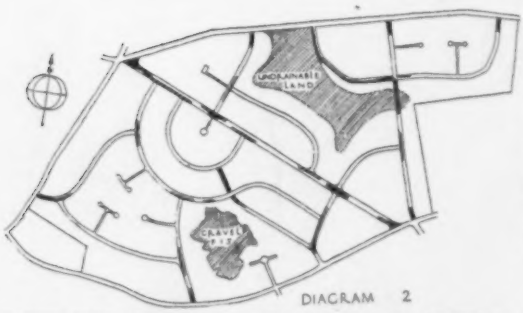


DIAGRAM 2

ILLUSTRATING THE GAIN IN "FRONTAGES" WHEREVER NEEDLESS CROSS-ROADS ARE SAVED BY CAREFUL PLANNING

"It is not only the saving in capital costs which can be made by causing given lengths of roads and sewers, and of other services, to suffice for a greater number of houses in the ways we have been going into and in many other ways, which we have not gone into, which are important. Of importance also are the resulting savings in the costs of maintenance, upkeep and supervision.

"If we increase the number of houses for which given lengths of roads and services suffice, the costs of maintaining, lighting, supervising, scavenging, and draining our roads will be less and we shorten the 'rounds' of the rent collector, the policeman, the dustman, the postman, the milkman, the baker, the water cart, the doctor and the road surveyor.

"Had not knowledge of the things we have been considering been brought to bear on the development of Clifton Lodge Estate, roads would have been built across it . . . and purchasers of plots would have accepted these roads as unquestioningly as the speculative builder has always accepted such roads together with their unnecessary cost."

Honoring Distinguished Service Citizens of City and State

LINCOLN, NEBR., is one of the increasing number of American cities so permeated with a spirit of civic consciousness that it finds frequent and suitable occasion for celebrating. Particularly, Lincoln celebrates such contributions to the common good as have "found approval in the hearts of the people of the state," and those which "stimulate citizens everywhere to place higher values upon distinguished service."

The most recent of such celebrations was one at which, in the presence of a representative gathering of people from all over Nebraska, a Distinguished Service Medal was conferred with impressive ceremony upon a citizen of that state "in appreciation of his sterling worth as an individual and in recognition of a lifetime of constructive service as pioneer, soldier, citizen, and statesman." This occasion was described in *The Kiwanis Magazine* as the most outstanding community service event in a year of outstanding community efforts. It was the fifth annual event of its kind that the Lincoln Kiwanis Club has given as a grand climax to its year's activities—an event which has come to be recognized as of first importance not only in that city but throughout the state.

LINCOLN KIWANIS CLUB'S DISTINGUISHED SERVICE MEDAL

The man upon whom the honor was conferred is Colonel Thomas J. Majors, of Peru, Nebr. The ceremony took place in the presence of his fellow pioneers of the old days; comrades of the Grand Army of the Republic, and ladies of the Relief Corps; neighbors who live near Colonel Majors on the farmstead of his early pioneer days, now grown to a thousand acres and still his home. Representative Kiwanians and officials of Lincoln's other civic organizations were there. The Governor of the state, the Chancellor of the State University, a former mayor and distinguished citizen, all appeared on the formal program, and there was state-wide representation of the press.

This public celebration of the physical hardihood that pushed the frontiers of American life on westward, and of the dauntless spirit that animated the leader of the G. A. R., must have thrilled the youth of the city of Lincoln, just as the celebration of Colonel Majors' high qualities of citizenship and statesmanship may well have stirred the pulses of adults attending the ceremonies. But it is not the soldier and the statesman alone that Lincoln celebrates. In past years, the Kiwanis Distinguished Service Medal has been conferred in the field of art, of letters, and of finance. The first year, it went to a life-long patron of the State University and a prominent member of the Board of Regents. Next it was conferred upon a woman of rare talent and constructive leadership who has made brilliant contributions to the musical and cultural life of the city. A prominent merchant, distinguished for his community service, was honored one year; and last year, a pioneer builder of Nebraska railroads received the medal.

This is a field of awards, certainly, as broad in scope as is that of the National Institute of Social Service in the presentation of its annual gold medals for outstanding community service. At its annual dinner in New York City, during May this year, this society conferred this honor upon an eminent symphony director, an equally eminent

minister, a newspaper publisher of world reputation, and a pioneer in the field of the "new" theater. These men are, respectively: Dr. Walter Damroch, retired conductor of the New York Symphony Orchestra; the Reverend Dr. Harry Emerson Fosdick, pastor of the Park Avenue Baptist Church of New York; Adolph S. Ochs, publisher of the *New York Times;* and Professor George Pierce Baker, of Yale University, father of the famous "47 Workshop" theater course at Harvard.

The Distinguished Service Medal, however, is not the only means Lincoln has of giving public recognition to private citizens. It was the local Chamber of Commerce* which, something over two years ago, first instituted in that city formal ceremonies of welcome for newly Americanized citizens. These new citizens were invited to a luncheon, and to participate with the business men of Lincoln, in a patriotic program where a soloist in the costume of Columbia sang the National Anthem, while Old Glory was slowly unfurled by a detail of Boy Scouts. Such ceremonies are designed as recognition of the potential contribution of Old World idealism and Old World culture a city is receiving in receiving new citizens, as well as to symbolize what the city and the country give to these citizens.

For the people representing all the different social and economic elements of a city to come together once in a while to celebrate those precious intangible assets which belong to them all in common is a good thing. And any community, large or small, which emulates the example of Lincoln and of the cities where similar community service programs are being enacted, will find it so and will discover that somehow the celebration of those assets increases and multiplies them mysteriously.

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* See "Welcoming New Americans to Citizenship," THE AMERICAN CITY, January, 1925, p. 74. An article, "Making Civic Service Fashionable," By Dr. Edward A. Fitzpatrick, in THE AMERICAN CITY, March, 1927, p. 324, contains an account of civic awards at Marquette University, Milwaukee, Wis. Since this article was published, the 1927 "Civic Convocation" has been held, and the University has conferred a certificate of distinctive civic service upon Victor M. Stamm, chairman of the Milwaukee County Community Fund drive. The citation praised Mr. Stamm for "his readiness to respond to every call to service in the public interest, his general civic activity and his general interest in such projects as the Boy Scouts and the Community Drive."

First Rural Hospital in Commonwealth Fund's New Program

A FIFTY-BED general hospital is now under construction in Farmville, Va., as the first project in the program of the Division of Rural Hospitals of the Commonwealth Fund, 1 East 57th Street, New York.

The plans for the Farmville institution, which is to be known as the Southside Community Hospital, were prepared by the New York architects, Henry C. Pelton and James Gamble Rogers, Associated. It is being built of red brick in the southern colonial style of architecture, and is of modern fireproof construction. The hospital has been planned to meet the community's needs for general hospital care, including maternity and out-patient service, and will contain adequate X-ray and laboratory facilities for clinical service, with provision for the separate care of colored patients. Space has also been reserved for nurse training and for staff meetings. The structure is so designed that, should conditions require it, the initial capacity of fifty beds may be doubled at a comparatively small cost.

The object of the Commonwealth Fund in organizing the Division of Rural Hospitals, as summed up in the Fund's annual report for 1926, is to stimulate the establishment of approved general hospital facilities in rural districts, and to demonstrate the practicability of integrating the hospital in a comprehensive local health program involving the active cooperation of all forces at work in the community. The Division is prepared to cooperate with selected rural communities by contributing two-thirds of the capital cost involved in building a hospital, in addition to furnishing building plans and specifications, advising in the selection of equipment, and in the organization of the institution for operation.

Provision is being made by the Commonwealth Fund for the construction of an average of two such hospitals each year.

Photograph from Mattie Edwards Hewitt, New York

DRAWING OF SOUTHSIDE COMMUNITY HOSPITAL, FARMVILLE, VA.

now grown to a thousand acres and still his home.

eminent symphony director, an equally eminent

Why Bother with Records at Sewage Plants?

By John R. Downes

Supervising Engineer, Plainfield and Dunellen Sewage Disposal Works, Bound Brook, N. J.

IN the rapidly developing industrial and residential area of north Jersey, there is no such thing as standing still. Plants are being outgrown daily. If there are no adequate records, operators are brought to a realization of the overgrowth by a notice from the State Board of Health to do something about the situation. Then a designing or consulting engineer is called in and told to design a new plant. In the absence of accurate records, he has only general information and rule-of-thumb methods upon which to base his new design. This is one of the causes of the large number of failures or partial failures in new plants designed. Another cause in the past has been that the consultant does not know what to do with the information if he has it. This is not a criticism of the consultant, but a statement of the general lack of information on the subject of sewage disposal.

Because of the excellent work of the New Jersey Sewage Experiment Station, fostered through the efforts of the New Jersey Sewage Works Association, the consultant, from now on, cannot get behind an alibi of general lack of information. The success of a plant will be squarely up to him, and pure laziness will be his only excuse for failure, provided the operator of the old plant can produce an accurate record of operation over a period of years.

What Records Should Be Kept?

One of the most valuable records is that of the number and kinds of connections to the sewer system. Such a record should be demanded by state authorities for every sewer system, whether it has a disposal plant or not. This is necessary because the demand for a plant will inevitably develop in time.

The importance of data on number and kind of connections lies in the fact that, the world over, the per person contribution of organic waste is reasonably constant. Data from Russia and Germany purporting to indicate a variation in this per capita distribution due to starvation diet during the stress of war conditions, really confirm the general rule by showing how comparatively slight this variation is under such extremes of conditions.

Various industrial wastes of an organic nature are being investigated in numerous places and by analysis and calculation, reduced to an equivalent per capita contribution. With such information at hand, the designer of the future will be able to determine accurately the prospective plant loads from a study of the number and kind of sewer connections.

Every Little Record Has a Meaning All Its Own

Plant records should mean something more to the operator than mere collections of figures, neat columns and squares. These records may be not only very useful, but interesting as well, if their purpose is understood. The purpose of such records is to show to what degree of efficiency the plant is being operated, and the effectiveness of the plant in accomplishing the purposes for which it was designed, to form a defense against criticism, and, last but not least, to establish data upon which alterations, enlargements or a superseding plant may be designed.

Of parallel importance is a record of the actual flow of liquid sewage. The number and kind of connections to the system will indicate the organic load on the plant or the amount of energy which will be required to purify the sewage. The record of the flow will indicate the size of pipes or flow channels necessary to carry the sewage at proper velocity, and also the dimensions of grit chambers, settling tanks, dosing siphons and oxidizing beds.

Flow records should show not only gross daily flow, but also hourly fluctuations or at least daily maximum and minimum rates and the amount of variation due to extremes of dry weather or local flood conditions and the duration of high flow after floods. These latter records the operator can make extremely interesting by connecting up the variations in flow with the habits of the community. For instance, in one town it develops that the community bath night is Friday instead of the time-honored Saturday night.

Meters should be installed where practicable in all sewer outfalls for determining the flow. Where meters are not available, weirs may be

used. Dosing devices or filling devices may be made to serve for measurement where other means are not at hand. Finally, if none of these conveniences are at hand, flow tests may be made between two manholes on a straight run of uniform size outfall line. In this case the depth of flow in the pipe line should also be recorded.

Though I do not for a moment wish to belittle the value of laboratory data, I would rather have a reliable record of flow and number of connections and character of connections to work on in designing a new plant than a complete record of analytical data with the flow and connection records missing.

Laboratory Records

The simplest and at the same time one of the most valuable laboratory tests is the determination of putrescibility, or the methylene blue test. This determination is so simple that there is no excuse for neglecting to make and record it very frequently. The results of this test inform the state board of health inspector or the consultant of the length of time during which the plant effluent may be left undiluted without causing a nuisance, and also of the quantity of stream water with which it must be diluted to prevent nuisance. A record of good tests of this kind is indispensable in defending damage action by persons farther downstream, for water pollution. The tests may be made very interesting to the operator by also keeping a record of the appearance of the growth on the outlet weirs or at the edges of the outflowing stream of sewage. It will be found that when the methylene blue color lasts for several days, the growths will be green, but that as soon as the blue samples go quickly, growths along the edge of the sewer outfall will be white. This is because the methylene blue requires oxygen to give it its color and because oxygen is required for the growth of the green organisms. It is interesting to try this and to observe how many hours or days the blue tests must give in order to produce a green growth at the outfall.

A somewhat more complicated test, yet one which anyone who can learn to weigh carefully can make, is the next in importance, namely, the weight of suspended solids in the sewage at different stages of purification and in the sludge. With this is of course coupled the determination of volatile matter and ash in the solids. The latter test is just a matter of burning off the volatile matter and reweighing the dish. In case the weighing of solids is entirely beyond the capacity of the laboratory equipment, the operator should not fail to make the very simple test for solids by volume in the so-called cone glass or Imhoff glass test. There is considerable variation of opinion about even this simple test as to the time allowed for settling, before reading, and whether one should jar or disturb the cone before reading, to bring down the material collected along the sides. But if it is always done the same way and careful records are kept of the results, it is comparatively easy for the future investigator to transpose the records into the terms with which he is familiar by making a few representative tests by the operator's method and by his own.

The one other really valuable laboratory test to be made is that of pH, hydrogen-ion concentration. A practical and reliable method of making this test in sludges and sludge water is still to be developed.

There is at present little to be said in favor of the determination of various forms of ammonia, which has consumed many laboratory hours in the past and the results of which fill many volumes. In the light of modern information, it seems better to confine routine analysis to the determinations outlined above and to spend the rest of the operator's time and energy on intimate and practical problems which no operator needs to have pointed out to him. They stare him in the face constantly.

What Plant Records Really Show

The Plainfield and Dunellen Joint Sewage Disposal Plant was designed as of 1916 with the idea that it would carry on to 1931, when the probable population would be 40,000. This estimate was based on records of growth from other comparable communities, and the figures appear to be as satisfactory as could be expected. However, a shift of population to the suburban metropolitan district of which these communities are a part, upset all calculations, and the projected population was reached in 1923 instead of 1931.

A careful record of number of connections was available and has been repeatedly checked against other available population estimates. The flow of sewage as estimated in the basis of the design of the plant was 100 gallons per capita. This, too, seems reliable, as this rate has been maintained over a period of a number of years. However, a water-supply fight and alleged shortage of water resulted in the installation of meters in this district and, as the population increased, the per capita consumption of water or contribution to the sewer system decreased from 100 gallons to 80 gallons per capita.

Without available records, it would indeed have been a mystery how the population could have increased from 34,000 in 1919 to 47,000

in 1926 without any increase in flow of sewage, and why, with no increase in flow, the plant could not do as good work in 1926 as in 1919. Plainly, it would have been charged up to the operator.

But the records available did not stop there. Years of records on this sewage, previous to the building of the present plant, showed about 150 parts per million of suspended solids in the raw sewage. This ratio of 150 parts per million held until 1922, when the divergence between connected population and sewage flow began to show. The following is the record of population, flow and suspended solids in parts per million from 1920 to 1926, inclusive. Population is based on five persons per connection and checked by other information.

No. of Connections	Population	Flow M.G.D.	Solids P.P.M.	Year
6909.....	34,500	3.7*	161	1920
7138.....	35,700	3.2	150	1921
7368.....	36,800	3.3	147	1922
7707.....	38,500	3.3	188	1923
8093.....	40,500	3.3	212	1924
8464.....	42,300	3.2	216	1925
9110.....	45,550	3.2	218	1926

* 1920 flow high because of abnormal flow first six months. Industrial sewage of negligible character.

For purposes of distributing costs, there is a connection report sheet used at the Plainfield and Dunellen Joint Sewage Disposal Works. It is tabulated monthly from the sewer permit records.

In order to make the weight of suspended solids mean something more than a set of figures, ranging from 147 to 218, it is well to study a typical record of settling-tank influent and effluent.

In 1921, with a flow of 3.2 million gallons daily, there were 150 parts per million of suspended solids in the sewage entering and 59 parts per million in the tank effiuent. This is a difference of 91 parts per million, which represents the solids retained in the settling tanks. The flow was 3.2 million gallons, weighing 8.34 pounds per gallon, or 26.7 million pounds. From each million pounds of sewage there was retained 91 of dry solids, or a total of 26.7 times 91, which gives 2,429 pounds of dry solids.

In 1926, with the same flow of 3.2 million gallons daily, there were 218 parts per million solids in the sewage and 92 parts per million in the effluent. The difference is the quantity retained, equal to 126 parts per million. By the above calculation, 26.7 times 126 gives 3,364 pounds of dry solids. This is almost exactly 33 per cent more material to handle, though the flow was the same.

The solids as they have to be handled are not dry, but constitute about 5 per cent of the weight of the sludge which does have to be handled, the rest being water. Then the solids retained in 1921 represented 48,580 pounds, while those in 1926 represented 64,080 pounds of sludge daily. The former represents a volume of 770 cubic feet, while the latter represents a volume of 1,017 cubic feet.

Calculation of Volume of Sludge

An example of calculation of quantity of sludge is given below. Suppose exactly 100 parts per million of solids are retained in a settling tank from each million gallons of sewage. The operator knows whether he is handling 500,000, 333,000 or 2,000,000 gallons daily, and from his records and from the analyses returned by the state health department, he will know whether he is retaining half a hundred parts, or three-quarters of a hundred parts, or may readily determine the quantity of green solids to be handled. It is very interesting to check this up by measuring the sludge in the tanks and on the beds. One million gallons of sewage, leaving 100 parts per million of solids in the settling tank, will yield in dry solids 8.34 times 100, or 834 pounds, and in wet solids (95 per cent moisture) twenty times this figure, or 16,680 pounds, equal to 266 cubic feet, or 1,995 gallons, or in round numbers 2,000 gallons.

From such a calculation it is possible for any operator to determine the size of pumps needed to move the solids from the settling tanks, or, if there is trouble in getting the sludge digested, reference can be made to Dr. Rudolfs' 2 per cent rule or the writer's deposition and accumulation curve, Transactions, Am. Soc. C. E., page 921, August, 1924.* The operator may find that he has not sufficient sludge digestion capacity. If the deficiency is not too great, he may turn to the New Jersey Experiment Station data and, with a knowledge of the quantity of suspended solids and the percentage of these that are volatile or organic, he may determine the proper quantity of lime to be added to tide him over the difficulty.

* AUTHOR'S NOTE.—In the Transactions of the Society the word "deposition" was copied "disposition" and "days" was substituted for "deposition units," in preparing the chart for print, so that the chart as there lettered is rather meaningless without these corrections.

ACKNOWLEDGMENT.—From a paper read before the New Jersey Sewage Works Association.

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The Maintenance of Unimproved Streets in Cities

Abstract of Discussion at the Seventh Annual Conference, International Association of Street Sanitation Officials

By George H. Sandenburgh
City Engineer, Ann Arbor, Mich.

There are two problems involved in laying dust on unimproved city streets. The first is to keep dust from flying, and the second is to keep the surface of the streets smooth, that is, smooth enough for comfortable riding. There are two materials used for dust laying—oil and calcium chloride. Both have been used with varying success.

There are many different kinds of oil used, but it is sufficient to consider two kinds, light and heavy, or they may be classed as hot and cold application oils. In order to get the best results, a heavy oil should be used, one that will form a mat or act as a binder to hold the road surface down. If a light oil is used that does not form a mat, dust will rise and will be more of a nuisance than if no oil had been applied. Although it is not so apparent to the eye, and one does not see so much dust, it is there just the same, and an oily dust is worse than plain dust.

Light Oil

Dirt and gravel street surfaces are bound to rut under traffic, and the only way to keep them in condition is by the use of graders and drags. If graders are used on a street treated with light oil, the effect of the oil is soon lost. We will therefore eliminate light oil as an economical material for dust laying on unimproved streets.

Heavy Oil

If a heavy oil is to be used, especial attention must be paid to putting the street surface in a good, smooth condition before the oil is applied. The surface of the street should be graded smooth and all dust pockets removed before oil is applied. I have sprinkled a street before oiling and I believe that is better than to have a street too dry. The point I want to bring out is that there should be no thickness or layer of dust on the surface when the oil is applied. If there is, holes will soon develop and the street become almost impassable.

If a street is properly built with 6 to 8 inches of gravel and is curbed and guttered, a heavy oil will make it dustless. This gravel should be 80 to 85 per cent pebbles and be graded uniformly from that passing a ¾-inch screen to that retained on an 8-mesh sieve. With this form of material, a good, smooth, hard service can be obtained on which a heavy oil will give good results.

When we do this, however, we are getting away from an unimproved street and into the improved class. My experience has been that it is practically impossible to keep an unimproved street in good condition after it has been treated with a heavy oil. After the oil is applied, it is impossible to use graders or drags, and the only method of repair is to fill the holes that develop with a mixture of earth and oil. This is all hand work and is not economical, so we will eliminate heavy oil as an economical dust layer on unimproved roads.

Calcium Chloride

Three or, at the most, four applications of calcium chloride will keep the average unimproved street dustless during the dust season in Michigan. In my opinion, the great advantage in using calcium chloride is that the street can be maintained with graders and drags and kept in a good, smooth condition throughout the dust season. I would recommend 1½ to 2 pounds per square yard for the first application and ½ to ¾ of a pound for the succeeding applications.

The first application should be made as soon as the dust begins to fly in the spring, and succeeding applications should be made as needed. The last application is usually made in August. It must be remembered that the rainfall governs to a certain extent the number of applications of chloride and the time of application. Cloudy, humid weather is the best time to apply chloride. It then absorbs moisture from the air very rapidly and this moisture has a chance to penetrate into the surface of the street.

The flake calcium chloride should be used. It is now obtainable in 100-pound moisture-proof bags. We have kept it over winter without having it cake. For spreading, we use lime spreaders and take the wheels off and attach the spreader to the rear of a 3-ton truck. The bags can then be emptied directly into the spreader from the truck. By using the flake chloride, an agitator in the spreader is not

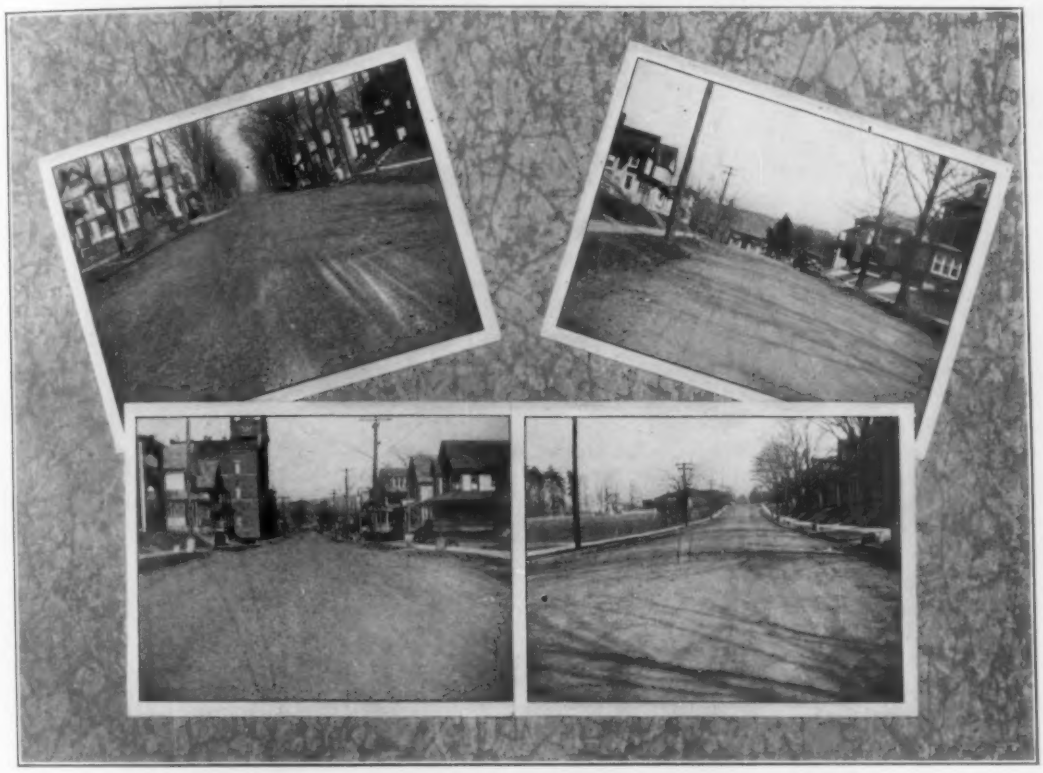
necessary. The size of the openings in the spreader can be regulated so that the required amount of chloride will be applied per square yard.

Financing

The cost of applying the chloride to the street is about $1.25 per ton. This includes unloading and truck service. The money for

tematic manner, considerable time saved, and the job finished.

The point may be raised that it is not fair to tax property on a paved street for laying dust on an unimproved street. But the property on an unimproved street has in most cases helped to pay for paving the improved streets and in all cases helps to pay the cost of keep-



SURFACE-TREATED STREETS IN BINGHAMTON, N. Y.

Upper left, Chestnut Street, between Riverside Drive and Bennett Avenue, a dirt street treated with Socony liquid asphalt No. 4 and No. 6, covered with No. 1 stone. Upper right, Crestmont Road between Grand Boulevard and Main Street, a dirt street treated with Socony liquid asphalt No. 4 with no cover. Lower left, Laurel Avenue between Schubert and Main Streets, a dirt street treated with Socony liquid asphalt No. 4 and Socony surfacing asphalt covered with No. 1 stone. Lower right, Seminary Avenue between Beethoven and Laurel Avenues, near Recreation Park; dirt street, treated with Socony liquid asphalt No. 4 and Socony surfacing asphalt covered with No. 1 stone

dust laying should be raised by general tax. A petition method where the property owners collect the money is not good. The petitions straggle in all summer and applications of chloride cannot be made to advantage. The petition system keeps you running from one part of town to the other and you just get your spreading crew working nicely when you have to stop and wait for some more money to be paid in. Then the expense of making the distribution cost for the property owners is half as much as the cost of application. When the money is raised by general tax and all streets are treated, the chloride spreading can be done in a sys-

ing the paved street clean, so I believe it is fair to raise money for dust laying by general tax.

Permanent Improvement Preferred

I do not believe that any method of dust laying is really economical. The money spent for dust laying might better be spent for pavement. The cost of dust laying would pay the interest on paving bonds and enough would be left to retire the bonds. For example, we spent $21,975.76 for dust laying in Ann Arbor during the last season. This was all raised by general tax. Let us use $22,000 for easy figuring.

Capitalize $22,000 at 5 per cent, which gives $440,000. As the city at large pays about one-third the cost of paving, we can afford to spend three times $440,000, or $1,320,000, per year for building new pavements, and what we now pay for dust laying would pay the interest charges on the pavement bonds. Or, we could spend $450,000 per year for pavements, and what we pay for laying dust would pay the interest charges and retire the city's share of the bonds. In a few years we would have all our streets paved. Therefore, I claim that the most economical way to lay the dust on unimproved city streets is to pave them.

By Cornelius M. Cary
Superintendent of Streets, Binghamton, N. Y.

The city of Binghamton for a period of twelve years has been combating the dust nuisance by the use of oil, as well as a small amount of calcium chloride. The general procedure is by petition presented to the Council by property owners or residents on the streets to be oiled. When all owners or residents on the street to be oiled have their petitions prepared, which must be in the hands of the Council by February 15, then this work is covered by blanket ordinance and a public hearing is called to allow the opponents to be heard. This matter is put through the Council and signed by the Mayor by March 1, allowing us to contract for the oil during the winter season at prices somewhat lower than the rate in the spring.

Preparation of Roads for Oiling

The first work in the spring in preparation for oiling is to work all earth gutters with blade graders and remove all filth, leaves, etc., that have accumulated during the winter season. In that way we prevent dead material from being worked back into the road surface and it provides drainage to catch-basins.

Following this, the street gang starts scarifying all streets that show bad spots and disintegration. They scarify only the crown and quarters, never going into the gutters unless conditions warrant. This work is followed by the graders bringing the street to crown and shaping to provide suitable drainage, then rolling with 12-ton rollers.

In the application of oil, I have gone against the general rule by having the oil heated to about 150 degrees. We use Standard No. 4, containing 40 to 45 per cent asphalt. The oil is applied to the crown and quarters in quantities of about ¼-gallon to the square yard and to within 18 inches of the gutter line. We turn traffic on the street immediately, allowing the oil to be pounded in, and traffic also will carry any excess to the gutter. We have found that a good oil mat is formed, and when we get a good mat on any street where any amount of traffic is carried, we cover this street in about three weeks time with Standard No. 6, which is a heavy oil containing about 60 per cent asphalt. This is applied quite hot and covered with about 30 pounds of No. 1 stone. In this manner, we are putting in about five miles of street per year, which will need no attention for a period of at least two or three years.

During the last season we scarified, reshaped, rolled and oiled 53 miles of streets. The street averages 30 feet from gutter to gutter. This work was completed in a period of 30 working days.

The only oiled streets that have given trouble with rutting during the last year were those that in the past had had gutter material worked into the traffic sections. The dead material formed ruts and potholes and it required considerable time to eliminate this condition.

Property owners are assessed 7 cents per lineal foot for the work and application of oil. We employ two girls in the Oiling Division whose work is to make out bills and forward them within 24 hours after the street is oiled. The average resident pays for his street oiling within a week after the work is done.

Under certain conditions, I have also found it to my advantage to use what is known as "New York State cutback." This is a heavy oil containing about 80 to 85 per cent asphalt. It is applied hot on a mat of No. 4 oil and blotted with No. 1 stone. It makes an excellent street, as the distillate evaporates within 24 hours, and it appeals to the residents, as there is considerably less tracking than when the No. 6 oil is used. On streets where we use the heavier oil, we generally increase the assessment to cover the additional cost of the oil, stone, and labor for spreading the stone.

Calcium Chloride

We have been petitioned to use calcium chloride and it is generally applied between three-quarters and one pound to the square yard on the first application and an equal amount in a period of four to five weeks afterward. The maintenance of these streets after the original working is an item. We find that it is necessary to get about 13 cents per lineal foot to cover this type of dust layer. Petitions for this material are becoming less each year; we had petitions on only two short streets last year and I do not expect any more the coming season.

MODEL OF DENVER'S PROPOSED CIVIC CENTER

The $5,000,000 City and County Building, Greek Renaissance in its architecture, is to occupy a full block, 400 x 270 feet, in the magnificent 32-acre Civic Center. The State Capitol, not shown in the model, stands at the other end of the mall

A New City-County Building Evolved Through Cooperative Effort

IT has been said that the new $5,000,000 City and County Building, for which plans have been completed, will place Denver architecturally in the front ranks of American cities. It seems a conservative statement to add that perhaps no city and county building hitherto erected has received more careful, detailed consideration, or has been the object of more collaboration on the part of specialists in its own community. A few excerpts from a paper read by Jay T. Williams, Chief Inspector of the Building Division of Denver, before the recent Building Officials Conference in Chicago, will give some idea of the scope of this collaboration:

"Instead of placing the contract for the architectural and engineering services in one office, the architects of the city belonging to the American Institute of Architects associated themselves to form the Allied Architects Association of Denver. In their hands were placed the preliminary studies, and the Association, composed of thirty-nine leading architects, started their first step in the general design, following the logical development from such a study, and, picking from thirty-odd tentative sketches, have developed the present design that has been approved by the City Council and by Mayor Stapleton.

"The major part of the design was instigated by Fred E. Mountjoy, Robert K. Fuller, and George Simpson Koyl. The board of directors of the Association was given full authority to act, and at the present time the City and County of Denver has the completed plans and specifications for a magnificent and practical municipal building designed to be occupied by the entire administrative offices, as well as the Courts of Justice, and a War Memorial to be dedicated to veterans of all wars. Many special studies were required for this design."

Local cooperation started before the building project was placed in the hands of the architects. It was the object of painstaking research and investigation on the part of the Building Division, which in Denver has an exceptional organization and exceptional powers, and which in some cases plans and constructs public buildings in addition to its duties in criticizing, wrecking, reconstructing and general superintendency.

"One of the greatest services rendered the city has been its preliminary studies for the new City Hall and Court House. The original study for this building started three years ago by an inspection tour through East and West for gathering data and information relative to the practicability of design with relation to municipal government and its needs. . . . We found valuable suggestions as to location of various departments with reference to public visitations to municipal offices, the question of municipal courtrooms and their location, from the standpoint of ease of access. This in many cities has been overlooked, and consequently during the early periods of the day, the entire building and elevators are crowded, taking care of court cases. With the reaction received from our visitations, we started a thorough investigation of our municipal needs in the way of services, accommodations of departments, location of each with relation to other departments con-

tiguous in character, and many other important phases. . . . Responsibility was given to a great number of division employees. In fact, during the first year of the tabulation of data practically all of the men were given the opportunity to study other departments with reference to their individual problems."

The City and County Building was conceived as a unit in Denver's magnificent civic center, which is a product of twenty years of consistent growth, and has been watched with interest by other cities far and wide.

"The additional property was acquired four years ago, and an extension to the civic center was effected to accommodate the new building. The present development will contribute to an architectural beauty that no other city can boast. The predominating building will be the State House, built in the center with a full block 400 feet long and 270 feet wide, and an open mall leading towards the west and flanked on each side by memorials such as the open-air Greek Theater, the present Public Library, and the proposed City and County Building, which will also be built in the center of a block of the same dimensions as the block upon which the Capitol is situated."

Published Schedule of Pick-ups Helps Garbage Collection

By Frank H. Williams

THERE is never any question in the minds of residents of Santa Ana, Calif., as to just when garbage will be collected, because the street department of the city, which has charge of the garbage collection, makes a practice of publishing, every now and then, the schedule showing just when collections will be made.

Household and business accumulations are grouped into three classes in this city—garbage, cans, and trash.

The schedule of collections for these three classes is as follows:

Garbage

Monday and Thursday—All streets south of First and east of Main.

Tuesday and Friday—All streets north of First Street.

Wednesday and Saturday—All streets south of First and west of Main.

Cans

Tuesday—All streets south of First and east of Main.

Thursday—All streets north of First Street.

Saturday—All streets south of First and west of Main.

Trash

Monday—All streets south of First and east of Main.

Wednesday—All streets north of First Street.

Saturday—All streets south of First and west of Main.

Of course this schedule is real news for the local papers and so they willingly publish it, and, of course, many of the folks cut the schedule out and keep it for reference and in this way know just how to handle garbage, cans, etc.

The street department in this city insists that householders and business men shall group their accumulations into three classes. Paper and other combustible trash are segregated from bottles, tin cans and junk, while garbage must be free of everything except refuse from the kitchen.

Paper, trash and garbage collections in this city cost a considerable sum, as shown by the statistics for the last six-months period.

During the last six months a total of 407 tons of paper was collected, at an average cost of $5.50 a ton. The average daily pick-up was two and a half loads. This collection was principally in the business district.

Trash and junk collections from the residential districts average two and a half loads a day, the total being 321 tons picked up, at a cost of $4.15 a ton.

The largest daily pick-up was on cans. The average was four loads a day, the total for the six months being 428 tons, and the average cost $3.78 per ton.

The garbage pick-up averaged 6.4 tons a day, for which the cost was $4.72 a ton. The city, however, sells the garbage at $1.25 a ton, leaving a net pick-up cost of $3.48 a ton.

The average daily pick-ups in the business district for garbage were 245, and for the city 1,043, with an average of 3,404 for the entire city on garbage, trash and cans.

An extension of the pick-up service has recently been made by the street department to include tree trimmings. This will be something of a special service, as householders having trash in excess of a cubic yard are required to notify the street department that this is the case. The pick-up is then made within twenty-four hours. Trash accumulations in excess of a cubic yard are passed up by the regular trucks, as the truck capacities are one cubic yard each. It is necessary to handle tree trimmings in this special way in order to maintain the regular schedule of collections.

MODEL BACK-YARD ROSE GARDEN IN THE MISSOURI BOTANICAL GARDENS, ST. LOUIS, MO.

Rose Gardens in City Parks

By Frank Dorrance Hopley

MUNICIPAL rose gardens have been in vogue for many years in other countries, but it was less than twenty-five years ago that the first one was established in the United States. The city of Hartford, Conn., was the pioneer. In 1904 it was voted to set apart a portion of Elizabeth Park in that city as a Municipal Rose Garden, and Theodore Wirth was given the commission to do the work. The rose garden, designed and constructed by him at a cost of $2,682.96, consists of 54,500 square feet, or 1¼ acres of land.

In addition to the Rose Garden proper there is what is called the "Convention Garden," which was started in 1918 during the convention of the American Rose Society, and nearby is the "Test Garden," where unnamed varieties are furnished by different growers to test their qualities. In these three gardens are 8 different types of roses, with 445 varieties. So popular has the Municipal Rose Garden at Hartford become, that over one hundred thousand people visit it each year, during the season.

The late G. A. Parker, veteran Superintendent of Parks of that city, to whom the Municipal Rose Garden was a thing beloved, in writing on the subject said:

"What in my opinion is the effect and value of a Municipal Rose Garden to the people of the city?

"It is valuable in several ways:

"It helps to make Hartford known very pleasantly to many people outside of the city and state. It attracts thousands of people from out of the state every year. On our 'Rose Sundays' probably ten per cent of the automobiles show license plates from other states than Connecticut, and there are a surprising number from distant states.

"As an advertisement and for promoting good feeling throughout the city, I think that the Rose

MUNICIPAL ROSE GARDEN, ELIZABETH PARK, HARTFORD, CONN.

Garden brings back a greater return in money to the city than is expended for its maintenance. It adds to the beauty and pleasure of many private homes; it has increased greatly the sale of roses by nurseries.

"Much greater than all the other beneficial results is the influence of the beauty of the roses upon the individual. The Rose Garden tends toward the healing of the spirits of the people, as well as being a source of strength, courage and of pleasure. No money estimates can be put upon its value to the people."

In 1907 Theodore Wirth left Hartford and went to Minneapolis, to construct a Municipal Rose Garden there. This was laid out in Lyndale Park, on the east shore of Lake Harriet, raised on a gentle slope and coming within 400 feet of the shore. There Mr. Wirth repeated his former success. Nearly one hundred beds are in this garden, and in each is planted but one variety of rose. The entire garden is enclosed with trellis work, the panels of which are utilized for the climbing roses.

While many cities in the United States had beds of roses in their parks, the idea of a municipal rose garden was slow in taking hold of the imagination, and slower of execution. Some of the larger cities were among the slowest in this regard.

In 1916 the Rose Garden in the New York Botanical Gardens was laid out. This covers a space of about 1¼ acres in extent, and is of a triangular shape. The length is about 350 feet and the greatest width about 200 feet. In planning this Rose Garden something "different" was aimed at; that is, to provide a collection of roses of as many kinds as possible, so that rose lovers could come there and see for themselves many of the kinds offered for sale in the nurseries. There are beds containing but one kind, sometimes as many as eighty individuals, where the mass effect of coloring forms important emphasis; in other beds there are two to four kinds, while in others, there are a few individuals of many kinds. In this way various effects may be studied.

In Boston, the Municipal Rose Garden in Franklin Park was not begun until 1924. It is planned to have this garden include one of the finest rose collections in the country.

A dozen or more cities now have municipal rose gardens. In Washington, D. C., the Rose Gardens are popular with the people who live there and the many visitors to the capital. In Humboldt Park, Chicago, there is a Rose Garden with 7,000 plants. In Syracuse, in 1925, a Municipal Rose Garden was opened and named after the Rev. E. H. Mills, a Methodist presiding elder, who has been active in organizing a series of rose societies in New York State, and has also served as President of the American Rose Society.

St. Louis has a model Back-Yard Rose Garden in the Missouri Botanical Gardens. This society sends out bulletins throughout the country dealing with the care and treatment of roses. Several eastern cities have lately started municipal rose gardens in their parks. Portland, Ore., has come to be known as the "Rose City." There, for mile after mile, the streets are bordered with double rows of roses, and on a certain road leading out of the city of Los Angeles, for twenty miles, both sides are lined with roses.

The American Rose Society, which now numbers over 5,000 members, has done much to make the rose popular among the people of this country. It has aided in many ways in the construction of municipal rose gardens, and still carries on the work with unabated vigor.

Employment Methods in Government and Private Industry Compared

IN an address before the National Civil Service Reform League and the New York Civil Service Reform Association at their recent joint annual meeting in New York, Thomas W. Swan, retiring President of the League, spoke at some length of a study made by the League, of the methods in use in more than a hundred corporations in respect to methods of testing, appointing, promoting, and removing their employees. The study was promoted by the frequent inquiry as to "why the Government doesn't adopt business methods" in the administration of its departments and the handling of its employees; and it brought out certain contrasts and various striking similarities between private and public business methods. After remarking that the old rule as to personnel management in industry was "hiring and firing" by the foreman, but that competition and the war labor shortage had given great impetus to replacing the old method, with its heavy turnover, by specialized personnel methods and departments, and outlining the results of interrogations of 132 corporations by the League's staff, he went on to say:

"Thus the report of the League's industrial survey shows that the commercial world, through an entirely different approach, is reaching the same conclusions as were reached by the civil service reformers through their effort to do away with patronage spoils, namely: that the greatest economy and production is achieved when appointments and removals are made solely on the basis of fitness and merit; that fitness and merit are demonstrable and measurable qualities; that the proper conduct of personnel work requires experts or specialists and cannot wisely be entrusted to executives and department heads as part of their routine duties.

"To those who ask, 'Why doesn't the Government adopt the business methods of successful corporations?' we may answer, 'It does; in fact, it has shown the way to private business so far as it has applied the civil service law to its employees.'"

Municipal Ownership Proves a Success in Morristown, Tennessee

Combined Water and Light Plant Provides Reliable Service with Low Rates and Surplus

THIRTY-TWO years ago Morristown voted $40,000 in bonds to build a municipal water plant. Two years later the city purchased from the General Electric Company, for $3,000, the electric light plant then in operation. Today, as a result of this initial step in municipal ownership, Morristown owns and operates a power and water plant with a commercial value in excess of one million dollars.

The first water plant was housed in a small brick building inside the city, which is now used as a substation. The equipment consisted of two small boilers, two steam pumps, approximately six miles of pipe lines, one reservoir of 750,000-gallon capacity, and about thirty-five hydrants.

For three years after its purchase the light plant was operated independently of the water plant, but in 1900 the two plants were consolidated and the old equipment of the light plant was sold to the Knoxville Electric Company for $1,000 and was installed at Tate Springs. New apparatus was purchased from the General Electric Company, of Schenectady, N. Y., and was paid for from plant earnings.

As the growth of the city demanded additional water-supply, in 1909 Havely Springs was purchased, located one mile north of the city, at a cost of $5,000. This spring has a daily flow averaging 1,000,000 gallons. Here were built two reservoirs with a capacity of 3,000,000 gallons, a pumping-station with a 2,000,000-gallon daily capacity, a filter plant with two mechanical sand filters of 1,000,000-gallon capacity per 24 hours.

During this year a bond issue of $25,000 was floated and in 1921 an issue of $15,000 for additional equipment and plant extension. In addition to these three bond issues, totaling $80,000, about $30,000 of funds derived from the sale of city improvement bonds has been spent for water extension from time to time as new paving districts have been established, making the total investment of the taxpayers in the plant $110,000 in 1923. To this were added the earnings of the plant, which were annually invested in equipment, so that the actual book value of the plant at this time was $317,432.68, and the franchise could readily have been sold for $500,000.

MORRISTOWN'S FIRST WATER PLANT, NOW USED AS AN EMERGENCY STATION AND SUBSTATION

At this stage in the history of Morristown's water and light plant the fact that Morristown was steadily increasing in population and industries began to make itself evident. Every year the city was threatened with water shortage during the late summer, and most drastic means of water conservation were resorted to.

INTERIOR OF THE MUNICIPAL POWER-PLANT AT MORRISTOWN, TENN., SHOWING FIRST UNIT INSTALLED

The power plant was taxed to its capacity to carry the industrial load necessary, and Morristown intended to grow.

After months of careful deliberation over the problem of whether Morristown should continue in municipal ownership and build a new power and water plant, or sell the franchise to a power company and buy its power and build a water plant, the project to build a new power and water plant of 5,000-kilowatt capacity was launched. In May of 1924 an election was called for the issuance of $300,000 water and light bonds. The vote was not heavy, but the bonds carried by 371 to 31.

An eleven-acre tract of ground, four miles north of the city on the Holston River, adjoining the Knoxville & Bristol railroad right-of-way, was purchased. On this has been erected a brick, steel and concrete structure, 80 x 100 feet, with concrete roof and ample floor space to accommodate a 5,000-kilowatt plant and unlimited room for additions to the building. The first unit, consisting of two Babcock and Wilcox boilers and two turbines, 2,000-kilowatt capacity, is now in operation, and the second unit is being installed.

The entire structure was built by force labor with James F. Mathes, who has served as Superintendent of the water and light plant of the city for twenty-four years, as engineer in charge. The only unit of construction let to outside contract was the 150-foot stack, which was built by the Alphons Custodis Chimney Construction Company, of New York. The plans and specifications of the building were drafted by R. E. Smith, architect of the East Tennessee Woodworking Company, of Morristown.

Equipment was furnished by the following firms: General Electric Company, Schenectady, N. Y., turbines, switchboards and all electrical equipment except the transformers; Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., transformers; Converse Bridge and Steel Company, Chattanooga, steel; Alcoa Brick Company, Maryville, Tenn., brick; Holston Quarry Company, Knoxville, Tenn., stone; Barber Asphalt Company, St. Louis, roofing; Worthington Pump and Machinery Corporation, New York, pumps; Riley-Sanford Stoker Company, Worcester, Mass., stokers; Babcock & Wilcox, New York, boilers; U. S. Cast Iron Pipe and Foundry Company, Birmingham, Ala., pipe; Crane & Company, Chicago, steam piping. The water intake is equipped with a traveling screen built by the Chain Belt Company, Milwaukee, Wis. A 20-ton crane installed in the plant was purchased from the Niles Crane Corporation, New York.

An 18-inch water line three miles long was laid from the river plant to the filtration station at Havely Springs and an intake built. The city is still supplied with spring water, but the river water can be used at any time in case of drouth or emergency. The two sources of supply and the large storage capacity are especially advantageous, as the storage lake can be filled at intervals when the river water is in the best condition for filtering, instead of having to take a daily supply from the river, regardless of turbid or freshet conditions.

The Water and Light Department since its establishment has been under the control of a Water and Light Commission. That municipal ownership has been a financial success is shown in the annual reports from this department, and the steady increase which has always resulted is shown in the following comparative statements. On December 31, 1900, for the first year of its operation as a consolidated plant, the Water and Light Commissioners reported their operating expense as $4,438.81 and their receipts as $4,813.88, or a net profit of $375.07. Since that time the annual report has always shown an attractive surplus. For the year 1926 the summary report shows the following figures:

Total receipts water plant operation	$21,164.59	
Total operating expense	15,983.04	
Net gain over operation		$5,181.55
Total receipts light plant operation	$73,091.66	
Total operating expense	48,646.99	
Net gain over operation		24,444.67
Net gain, both plants		$29,626.22

Of this amount, $16,743.73 was expended on new equipment, permanent extension of lines, and construction of two attractive cottages at the river plant, which are occupied by the resident engineers. After interest on bonds and sinking-funds were provided for, and the permanent extensions set out above, the report shows a balance at the beginning of the current year of $6,441.97. In addition to the actual cash plant earnings, free service to the city for public buildings, schools, street lighting and cleaning, white way in the business district, and fire protection, amounted to $15,000, making a total credit to the plant earnings for the year of $44,626.22.

Morristown now has a municipal plant of which the city may well be proud, and is in position to contract for the requirements of any industry. The output of the units of this construction already installed is in excess of the present load, and additional equipment can be installed at any time sufficient to take care of any industrial program which the city may undertake.

The plant has always been a success from a financial standpoint, but a stronger point in its favor is the exceptionally reliable and satisfactory service which this department has always rendered. The following letter quoted from the files of the Superintendent is evidence of this fact:

Charlotte, N. C., July 20, 1925.

Mr. James F. Mathes, Superintendent,
Morristown Water & Electric Light Plant,
Morristown, Tenn.

Dear Sir:

I thank you very much for yours of July 18, in reply to mine of the 15th in connection with additional power needed by us at Morristown, Tenn.

On account of the reliability of your power at Morristown we will, in all probability, serve a portion of our line continuously from this power. It is our intention to feed one end of this line from Asheville to Hot Springs and use your power from Morristown to Hot Springs, in addition to the power we are feeding west at the present time.

I see no need for additional contract if same is not desired by your company. The additional power we need will probably double the consumption at Morristown.

Yours truly,

J. B. Lamb,
Signal & Electrical Engineer, Southern Railway Company.

The Morristown power-plant furnishes power for the entire signal system of the Southern Railway from Knoxville to Greenville, and on the North Carolina division to Marshall, N. C.

The present rate schedule is as follows:

SCHEDULE NO. 1

Combination metered commercial and residence lighting, and small single-phase motor service:

1	to 100	kw.-hr. @	9c.
100	to 250	kw.-hr. @	8c.
250	to 700	kw.-hr. @	7c.
700	to 1,000	kw.-hr. @	6c.
1,000	and over	@	5c.

Minimum lighting charge, $1.00 per month.
On combined light and small single-phase power services current for lights and power will be combined and quantity rate applied.
On motors of 1 h.p. or over a minimum charge of $1.00 per h.p. will be made.

SCHEDULE NO. 2

Combination rate for residence lighting, refrigeration and cooking, where the connected load in cooking appliances is not less than 3,000 watts:
9c. per kw.-hr. for next 40 kw.-hr.
5c. per kw.-hr. for next 60 kw.-hr.
4c. per kw.-hr. for all in excess of 100 kw.-hr.
Minimum charge per month: $4.00.
Lighting and refrigeration:
9c. per kw.-hr. for first 50 kw.-hr.
5c. per kw.-hr. for next 50 kw.-hr.
Minimum charge per month, $3.00.

SCHEDULE NO. 3

Power Rates A 3-Phase Service

First	100	kw.-hr. @	9c.
100 to	400	kw.-hr. @	7c.
400 to	1,000	kw.-hr. @	5c.
1,000 to	3,000	kw.-hr. @	4c.
3,000 to	5,000	kw.-hr. @	3½c.
5,000 to	10,000	kw.-hr. @	3c.
10,000 to	15,000	kw.-hr. @	2½c.
15,000 to	25,000	kw.-hr. @	2¼c.
All over	25,000	kw.-hr. @	2c.

Minimum charge per month, $1.00 per Kw. connected.
Minimum charge on elevator $1.00 per Kw. connected load.

SCHEDULE NO. 4

Power Rate B

Demand charge of $1.50 per Kw. plus energy charge of:

First	500	kw.-hr. @	3c.
Next	2,000	kw.-hr. @	2½c.
Next	2,500	kw.-hr. @	2c.
Next	5,000	kw.-hr. @	1½c.
Next	30,000	kw.-hr. @	1¼c.
Excess of	40,000	kw.-hr. @	1c.

DETERMINATION OF DEMAND

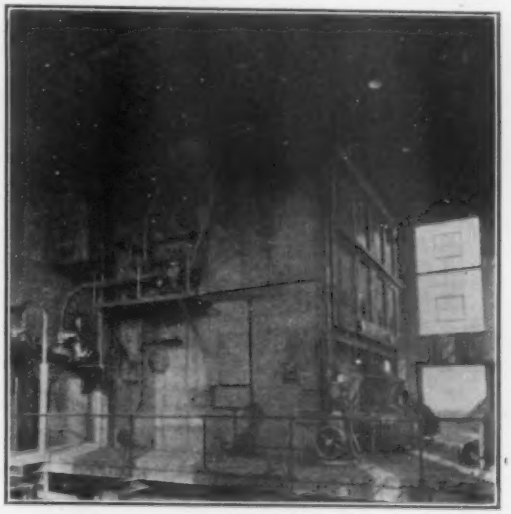
By demand meter or 60 per cent of connected load as minimum demand charge per month.

SCHEDULE NO. 5

Water Rates

First	5,000	gallons per month, @	30c.
5,000 to	10,000	gallons per month, @	27c.
10,000 to	15,000	gallons per month, @	25c.
15,000 to	50,000	gallons per month, @	20c.
50,000 to	100,000	gallons per month, @	15c.

Manufacturing plants, 100,000 gallons per month, @ 12½c.
Manufacturing plants, over 100,000 gallons per month, @ 10c.
Special concessions will be offered to new industries and plants carrying a heavy load.



INTERIOR OF BOILER-ROOM AT MORRISTOWN MUNICIPAL ELECTRIC PLANT

Methods of Strengthening Paving Foundations

By Frederic W. Lyon

Chief Engineer, Department of Public Works, Pittsburgh, Pa.

THE primary factor in construction of any structure subject to impact, vibration or heavy loading is a thorough, painstaking and, if necessary, expensive preparation of the subgrade or sustaining soil. In briefly discussing the problem I will cover the following points which I believe pertinent to proper practice in the construction of street foundations:

1. Preparation of foundation
2. Study of traffic which may logically be anticipated
3. Section of base and the obtaining of maximum resistance to prospective loadings
4. Financing of abnormal expenditures for street improvements

Preparation of Foundation

A roadway or street constructed on a 100 per cent theoretically unyielding base would be ideal even with a base having a cross-section much thinner then now found to be normally necessary.

Unfortunately, we are most frequently unable to obtain even the approach of a theoretically perfect subbase, and in view of this it has been our policy to pay most particular attention to the preparation of subsoil where streets are to be laid, first as to drainage, second as to compacting, and, in case of failure to obtain proper compacting, the introduction of stone or gravel or other impervious aggregate in such measure as to insure as nearly solid a subbase as is possible of attainment. It is my opinion that any economy practiced in the preparation of base is false and that the question of financial expenditure should never be considered in this connection.

Study of Future Traffic

The study of traffic which may logically be anticipated and upon which to a certain extent the cross-section of the base is predicated is one that of course hinges upon the general knowledge of the designing engineer concerning the locality and the amount of traffic present and prospective, both as to number of vehicles and as to tonnage carried. The future availability of the thoroughfare for extensive maintenance repairs must also be considered. It would be inadvisable to lay down a light base on a street in a busy section of the city which was at the time lightly loaded, but which might easily become part of a through highway. Many city engineers have been subjected to criticism by business interests on streets which had been, as they thought, economically improved and then, in a comparatively short time, had to be reimproved because of the failure of the original base, causing inconvenience and loss of business to the abutting owners.

There is some divergence of opinion among engineers as to the respective damaging influences of extremely heavy loading, as compared to a great volume of lighter traffic. I am not prepared at this time to offer a definite statement as to which is the more detrimental, but, from personal observation, I know that when a street pavement begins to ravel, the impact of comparatively light traffic has a tendency to rapidly increase the size of the failure and builds up expensive maintenance repairs and an obstruction to the free passage of traffic.

Section of Base

The next point to consider is the laying of a base, whether surfaced or unsurfaced, which will provide the maximum resistance to loading. First, it is, of course, necessary to obtain as nearly perfect materials for concrete as possible. In Pittsburgh we have instituted a system of rigid inspection of sand and gravel used on city work. A colorimetric test of sand is made at the floats as soon as the barges are delivered. These tests of sand have resulted in much better concrete.

We have not yet been able to test gravel as thoroughly as might be desired. We do, however, carefully inspect it as to gradation and as to the presence of foreign matter and flats. The producers of both sand and gravel on the Allegheny, Monongahela and Ohio Rivers are cooperating with us in obtaining the cleanest possible grade of sand and a gravel as perfect in respect to cleanness and gradation as the localities will permit. Practically all the producers have recently installed modern and expensive river equipment and are really furnishing very high-grade material.

Because of the economic factor in Pittsburgh, we use but little crushed stone for pavement foundations. In fact, the only instance in recent years is Mount Washington Boule-

vard, now under construction, which is a reinforced concrete highway.

Having obtained the best and the most economical aggregates for concrete base, the remaining points are the determinaion of the thickness of the section, whether it is to be reinforced or plain, and the methods of mixing and laying.

In general, except on those streets or highways where it is positively known that no pay-cuts will have to be made, we advocate the use of plain concrete. There is scarcely a city street that will not at some time or other be subjected to pay-cuts or the installation of, or repair to, public utilities such as gas, water, sewer, telephone conduits, etc. The patching of these pay-cuts has always been a sore point. Where a street is surfaced with asphalt or stone block on a concrete base, we have rehabilitated the base, by means of an overlapping section in a horizontal plane and an increased thickness in the vertical plane, afterward, covering this enlarged base with the same type of surfacing as was removed. Until recently, we have been by no means satisfied that even these patches were satisfactory, and would not encourage or advocate the use of unsurfaced concrete streets. Since a recent visit to Chicago, and from information derived from other sources, however, I am of the opinion that plain concrete street paving is entirely feasible and economical. Nevertheless, it is not believed that reinforced concrete street paving is suitable for city streets because of the fact that the section is designed for ultimate integrity on the reinforcement and any pay-cuts disrupting this reinforcement, of course, ruin the theoretical stability of the pavement. Observations made in the last five years lead me to believe that the time has now arrived for the revision of specifications to include the water-cement ratio, leaving out quantities of aggregate; in fact, disregarding aggregate, except as to its physical characteristics, which, of course, include both size and gradation. In Pittsburgh the thickness of base ranges at present from 8 inches to 10 inches, using a 1:2:4 mix.

Financing Abnormal Expenditures

Legislative action is necessary to bring about reimbursement to the various municipalities of Pennsylvania, at least, for their disbursements in street bases which are necessitated for the general welfare rather than for specific municipal requirements. In so far as Pittsburgh is concerned, and I believe that the same is true of most municipalities, at least of the commonwealth of Pennsylvania, all original street improvements are assessed directly against the abutting property owners, and it scarcely appears equitable to lay on a residential street a concrete base thicker than that which will be adequate to carry the traffic reasonably to be expected. We are, however, forced to lay a base of sufficient section to take care of the abnormal one per cent in order to have a lasting highway for the remaining ninety-nine per cent. Construction to meet this one per cent heavy loading seems absurd, yet is necessary. Assuming that we embrace such an economically unbalanced procedure as to construct all streets for the heaviest possible traffic, then ways and means must be devised very soon whereby maximum tonnage vehicles are taxed in proportion to the street expenditures they cause to municipalities, and a portion of the funds so derived is returned to the municipalities involved.

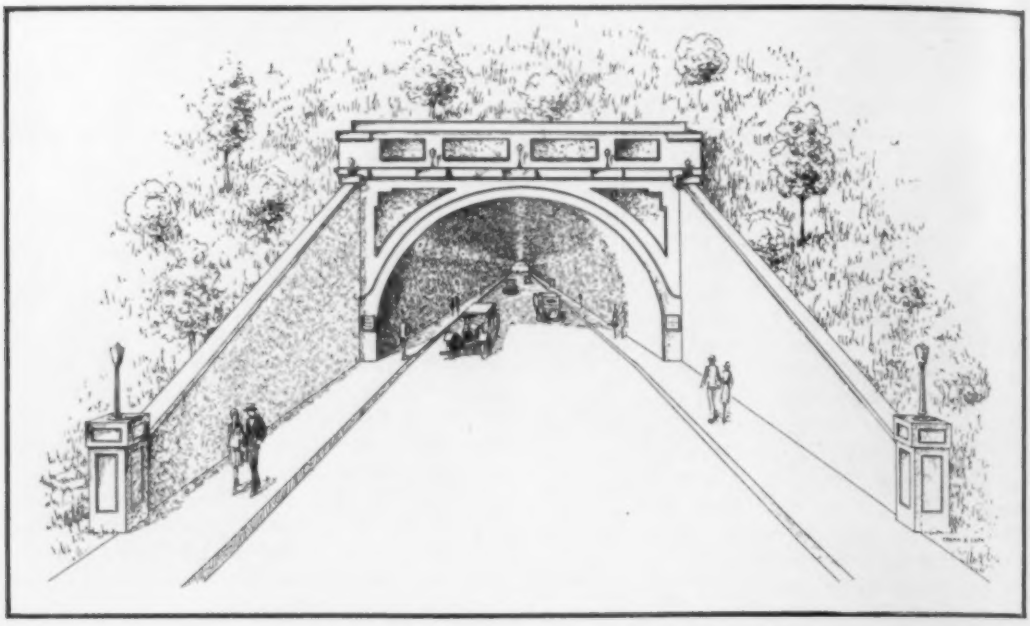
ACKNOWLEDGMENT.—From a paper presented before the Engineers Club of Philadelphia.

City and County Build Tunnel to Facilitate Traffic

Work Started in May to Be Completed by Next March

CONSTRUCTION of a $350,000 tunnel under Beaucatcher Mountain, in the city of Asheville and the county of Buncombe, N. C., is now under way as the result of an agreement of joint financing by the city and the county. The tunnel itself will be 910 feet in length, and 22 feet high, with a 30-foot roadway between curbs. A sidewalk 4 feet 7 inches wide is provided on either side of the roadway through the tunnel. The tunnel will be paved with concrete and will be concrete-lined. An adequate underdrainage system to prevent seepage and dampness is provided. The entire length of the tunnel is to be floodlighted. The east tunnel approach will be on a 5½ per cent grade, the west tunnel approach will be on a 3.9 per cent grade, and the tunnel proper will rise to the east on a 0.4 per cent grade.

Half the entire cost of the project, $350,000,



PERSPECTIVE OF BEAUCATCHER TUNNEL, ASHEVILLE, N. C.

including the western approach and the eastern approach for a distance of 1,400 feet, will be borne by the city, and half by the county. The county will bear the full expense of relocating the road from the end of the eastern approach to State Highway No. 10.

The tunnel and its approaches make a link in the general plan to provide eventually a straight cut from the east side of the city across through West Asheville. The other important links in this proposed chain of streets and highways are a proposed viaduct and a high-level bridge linking Asheville on a level with West Asheville. The Beaucatcher Tunnel and its approaches will also form an important link in the new road talked of to parallel the present highway to Black Mountain. Its construction will throw much of the heavy traffic off Biltmore Avenue, thus facilitating traffic movement greatly.

The design for the tunnel and its approaches were prepared by the Howerton Engineering Company, of Asheville, which will also superintend the construction.

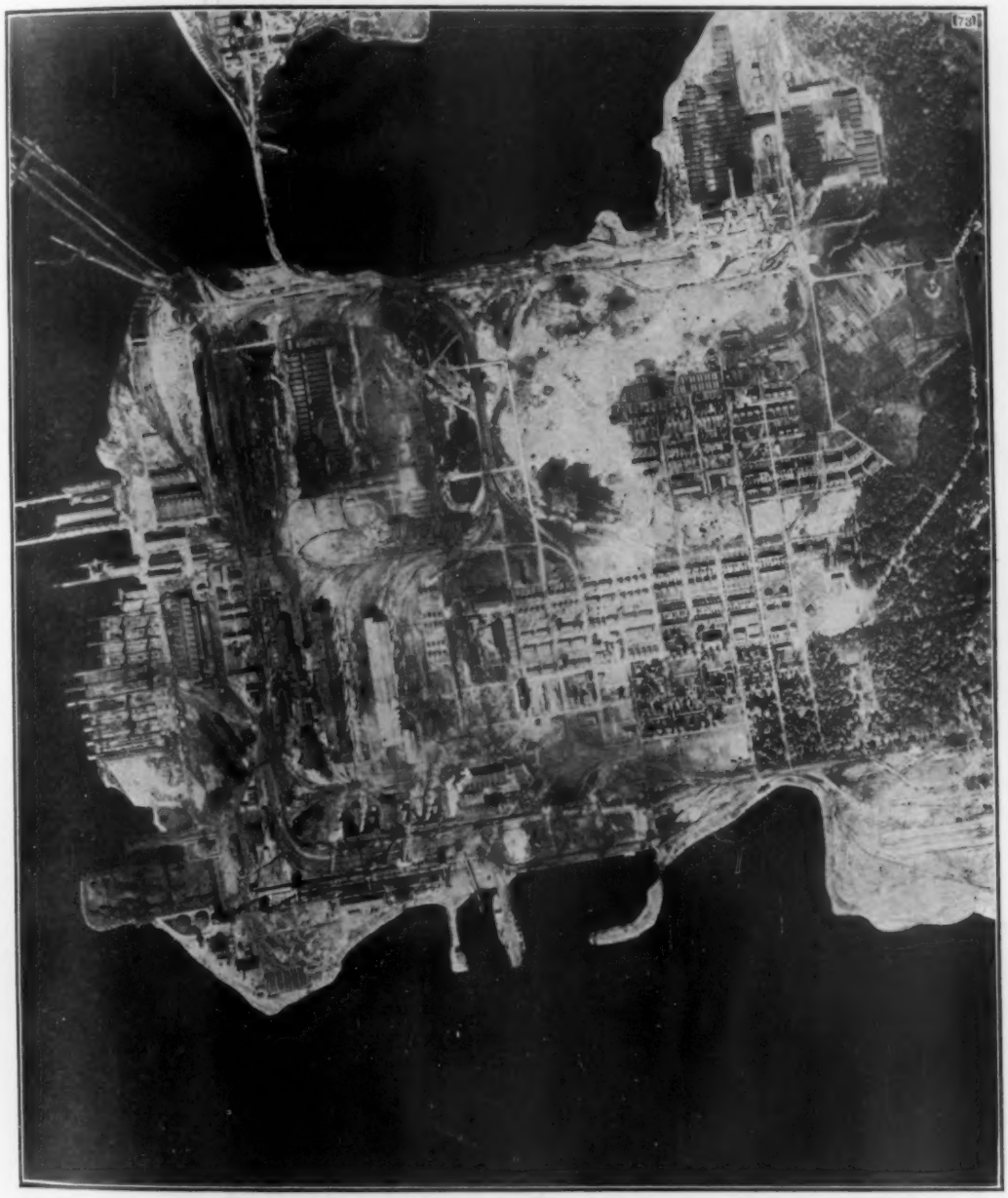
"Dim Your Headlights" in Atlantic City

Bright headlights are not needed on Absecon Boulevard, Atlantic City, nor are they wanted there. This fact is impressed upon automobilists by a sign erected by the city and signed by the Department of Public Safety, telling drivers to dim their lights. The length of road is illuminated by means of General Electric highway lighting units

City Planning and Aerial Maps

PHOTOGRAPHIC aerial maps, made by the well-known mosaic process of fitting together a number of vertical photographs which have been corrected to the proper scale, is finding increasing use in city planning. Although the conventional line map will show the geographical layout of the municipality, the problem of estimating the tone of a section, whether it be residential, factory site, or both, becomes much simpler by use of the air map, which gives the data obtained by the line map and in addition much cultural information not found on conventional maps.

In sections not completely mapped, this process gives more cheaply a scalable map in much less time than it is obtainable by ground surveys. Aside from the uses to which ordinary maps are put, the



Made by the Chesapeake Aircraft Co., Baltimore

AIR MAP OF THE CITY OF SPARROWS POINT, MD.

This is Page 73 of the Baltimore Air Map. It shows Sparrows Point, a city of about 12,000, built around the Maryland Plant of the Bethlehem Steel Company. A complete industrial community is here shown; the plant, the homes of the workmen and superintendents, the schools, stores, churches and theatres

air map provides the distinct advantage that any section of it may be studied stereoscopically, by using two adjacent and overlapping prints from which the map was made and placing them under the stereoscope, whereby the relief may be studied. This feature is inherent with the air map only.

In studying zoning problems and new street layouts, in estimating sewerage and water requirements in newly developed sections, answers to questions may be obtained in hours which require days by ground methods.

The city of Baltimore has recently received delivery of five complete aerial maps, in atlas form, of the city and a 3-mile strip of Baltimore County, adjacent to the municipal limits. This survey was to a scale of 400 feet to 1 inch and covers approximately 210 square miles, the map being delivered in the form of pages 24 inches square, each page conforming to the area covered by the topographic sheets of the Baltimore topographical survey.

This Baltimore survey entailed the making of fifteen complete atlases and was performed by the Chesapeake Aircraft Company of that city. The contract price was subscribed by a group composed of the city of Baltimore, Metropolitan District of Baltimore County, Baltimore & Ohio Railroad, Baltimore Gas & Electric Company, Real Estate Board, *Baltimore Sun* and others.

New City Hall Beautiful Addition to Informal Civic Center

ON one side of Bayard Street in New Brunswick, N. J., are situated the Court House and other Middlesex County buildings. Directly opposite them has recently been erected a new City Hall, handsomely designed both externally and internally. It is adapted from the Dutch Colonial style of architecture. The longer axis is parallel to the street, upon which faces a center doorway reached by a low, broad flight of steps, flanked by electric lanterns on simple pedestals. The main portion of the building is of two stories with basement and attic, with a gabled roof in keeping with the architectural type, and at each end there is a two-story extension or wing, adding to the capacity of the whole without destroying its pleasing lines. An attractive Colonial cupola or belfry surmounts the roof. The building is of red tapestry brick trimmed with stone. Three New Brunswick architects—Alexander Merchant, W. H. Boylan and H. G. Bach—collaborated in the design.

The first floor has a spacious central foyer, from the rear of which a broad staircase leads up to the second floor. At one end of this central hall are the Water Department offices, and at the other those of the Tax Collector and Water Collector. Opening upon the hall are also the offices of the City Clerk, Street Department, City Treasurer, and Comptroller and Industrial Secretary. To the left of the center is the telephone switchboard and information desk. On the second floor is the Mayor's reception room, imposing but not too elaborate, done in walnut paneling, with a touch of gold in the ceiling and drop-ceiling. At the left-hand end of this floor is the public meeting room, which is of a different but equally handsome design, the walls being of panels and pilasters in white, they and the ceiling also having a judicious amount of ornamental detail in low relief. Carrying out the Colonial idea, there are eleven high-

CITY HALL, NEW BRUNSWICK, N. J., WITH MAYOR'S OFFICE AND COMMISSION'S MEETING ROOM

backed mahogany benches for the public in attendance at the meetings of the City Commission, which sits around a conference table in the front of the room. The second floor also holds the offices of the Mayor and the Commissioners of Public Safety, Revenue and Finance, and Parks and Public Buildings, the City Attorney and the Health Department. On the ground or basement floor are the offices of the City Engineer, City Chemist, Plumbing Inspector, Building Inspector, Sewer Department, and Overseer of the Poor.

In conjunction with the nearby county buildings and park-like surroundings, the City Hall forms part of an informal civic center.

On April 27 New Brunswick celebrated Municipal Day, and Mayor John J. Morrison invited the mayors and governing bodies of the principal other New Jersey municipalities to a public inspection of the City Hall and various other civic improvements. A party of approximately a hundred persons resulted. After inspecting the new building they were driven in motor cars through the new Buccleuch Park, to the recently constructed Central Fire Headquarters with its modern and complete equipment, then to the site of a municipal dock to be constructed on the Raritan River; to the municipal swimming pool completed last year; to the filtration plant; and finally to the new dam which has created Farrington Lake, a reservoir of 800,000,000 gallons capacity, forming an important addition to the city's water-supply system, and a feature of much scenic beauty.

The Big Show in Kenosha

LAD-IES and gent-le-men!

Step right up and hear all about the Barndoor, Bailhay, and Ringless Circus! Kenosha, Wis., is its regular stand and its winter quarters as well. Most of the troupers are housed in classrooms of the grade schools daily between vacation seasons for this circus is annually arranged and performed entirely by the children who attend Lincoln Park playground. The first performance, in 1924, resulted from an inspiration which came to a young recreation director, Miss Marie Ludwig, when she was hard-pressed one hot August day for a new "stunt" idea.

That first year, 500 children took part. Across Kenosha's streets came trundling an astonishing collection of "animuls," clowns, and others, signs dripping wet paint, cages with roaring lions and bears who ordinarily boasted two legs apiece (and who privately complained for weeks afterwards of arms sore from being pranced upon). Even the traditional calliope was not lacking. A series of graduated pipes arranged on a coaster wagon with music coming from a concealed phonograph provided for that! Following the parade, there were performances in the ring with an audience of parents in attendance. Everyone instantly became an enthusiastic rooter for the circus, not the least enthusiastic being Superintendent of Schools G. A. Loomis.

The circus has grown into a community-wide project. Substantial prizes are contributed by business men. Evening performances have to be arranged to take care of parent-audiences. Regular sales promotion methods have been adopted by the youngsters, whose circus organization now boasts committees on publicity, advertising, and invitations. Every year, days preceding the "big show" are spent hammering together Wild West coaches and cages for the animals, and in ransacking attics and basements for convertible cast-offs.

Last year 2,000 youngsters took part. Nobody knows how many will take part this year, nor have the children announced what the main circus features will be, but since the first bud foretold vacation time, Kenosha boys and girls have been busy thinking and planning "circus."

GRACE R. REMICK.

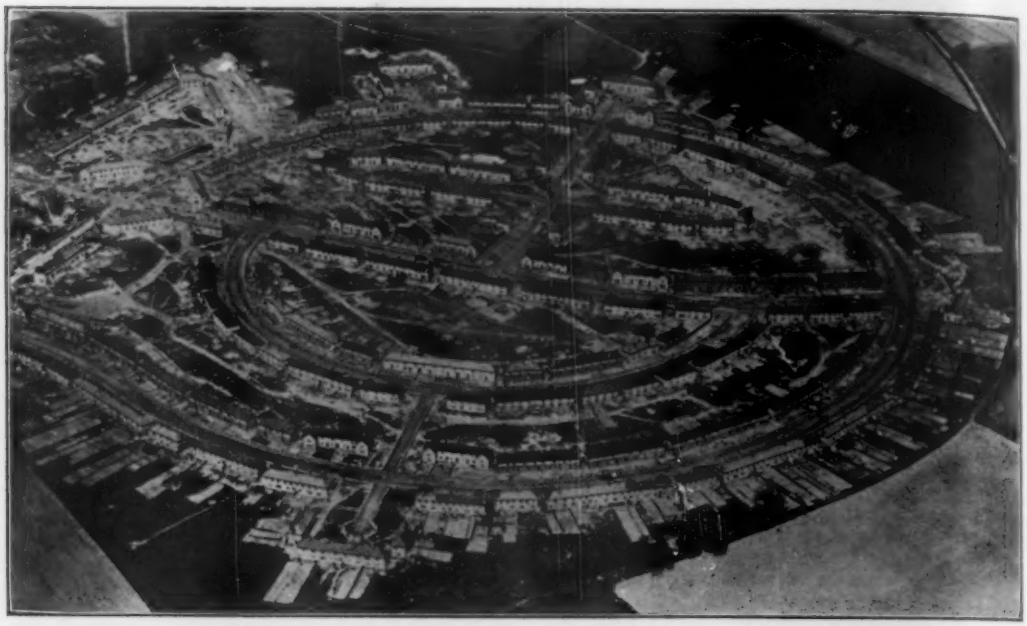
THE STAGECOACH READY FOR THE CIRCUS PARADE

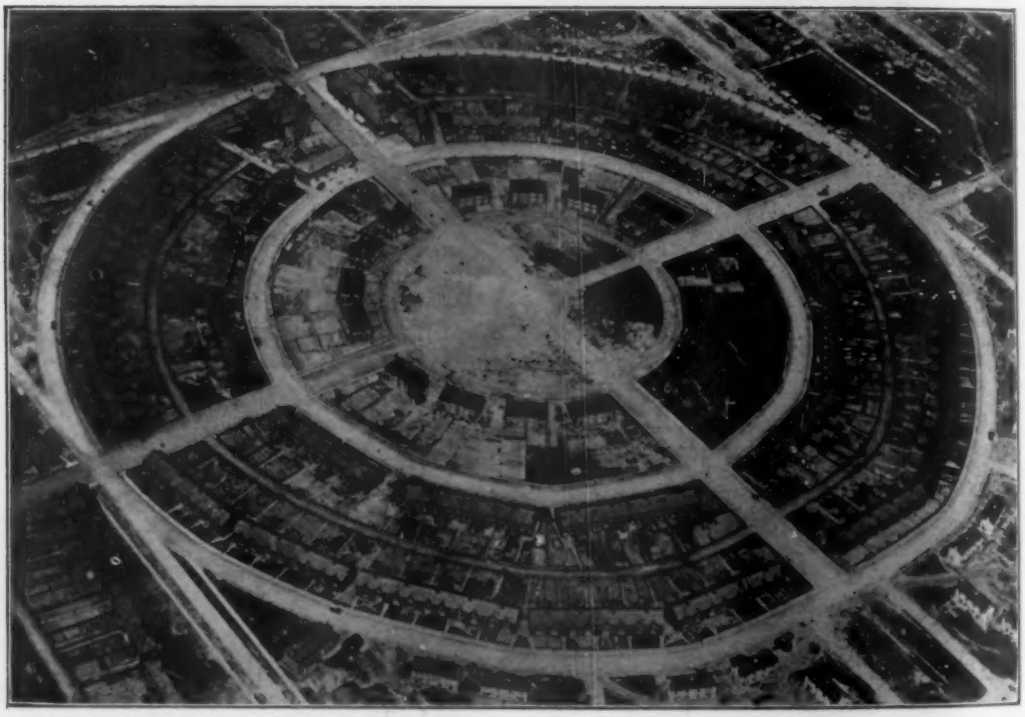
EDITORIAL NOTE.—Why not get the youngsters of the old home-town playground—or the whole community, for that matter—busy on a homemade circus this summer? They prove as popular everywhere they are put on as in Kenosha. One Pacific Coast city some time ago actually appointed a full-time playground circus director. The Playground and Recreation Association of America, 315 Fourth Avenue, New York City, publishes a wealth of instructions and suggestions; and a book on the subject, "How to Put on an Amateur Circus," by Hacher and Eames (T. S. Denison Co., Chicago), contains many amusing and inspiring photographs as well as working drawings.

Holland's Children's Police

The Children's Bureau of the U. S. Department of Labor reports that six of the principal cities of Holland have special bodies of "children's police." In Amsterdam the department is administered by a chief and a staff of un-uniformed inspectors. They supervise children's street trading and begging, investigate unsatisfactory home conditions, guardianship, truancy and other child delinquencies, attend sessions of the juvenile courts, and in general keep in close touch with child-welfare societies and reformatory institutions.

Circular Model Villages in England





From Ewing Galloway, New York

AIRPLANE VIEWS OF TWO INDUSTRIAL HOUSING DEVELOPMENTS AT ROSSINGTON, DONCASTER, IN YORKSHIRE, ENGLAND

Doncaster is a rapidly growing community, and has undertaken several projects to relieve acute housing congestion. Ample space is provided, with a maximum of light and air. In the upper view, surrounding meadow and farm land is shown

Municipal Control of Private Architecture Predicted Within Ten Years

WASHINGTON, our National Capital, is now only a quarter of a city! Seventy-five per cent of its building is ugly, depressing, and absolutely out of place! These statements made by California's well-known city planner, Charles H. Cheney, in an address before the recent meeting of the National Conference on City Planning, in Washington, might have appeared ungracious to the hostess city had not that municipality far outranked all other American cities in his comparative tabulation of the good architecture and good environment they offer. New York, for instance, Mr. Cheney lists as only 12 per cent of a city; Philadelphia, 15 per cent; Chicago, 8 per cent; San Francisco, 11 per cent. His own home metropolis, Los Angeles, Mr. Cheney accorded rank as only 88 per cent bad. At least, a frank and yet reasonably liberal and unbiased board of inquiry would have to report to this effect, he said.

Summary of Mr. Cheney's Conclusions

The greatest economic loss of our time is in the 90 per cent of bad building that we allow to go up in our cities. Proper architectural control will largely remedy this.

The architectural board of review, established by ordinance for the control of all private design, is essential to all sound city growth, and undoubtedly will come to be generally established during the next decade.

There seems ample indication that the courts will follow public opinion in sustaining it.

The architectural board of review must be of high personnel, established by controlled nominations, properly financed, and have, as far as possible, veto power, to be a success.

Establishment of a municipal architectural board of review should not be undertaken until the public has been carefully educated to appreciate its value and is prepared to stand back of its findings.

Boston ranks as about 12 per cent of a city, he told the American Federation of Arts the following week, in repeating the address at the Federation's annual meeting in that city.

Expressing the opinion that within fifty years more than fifty per cent of present building will have to be torn down because its exterior appearance ruins the aspect of the street, the speaker urged reasonable architectural control of all future building design in American cities. Any city planning or city planner that overlooks this as the necessary objective, will, he believes, be left behind in the advancement of our cities during the next decade. How consonant this conviction is with ideals and action in those European countries which today lead in civic progressiveness, is interestingly shown in the issue of the Bulletin of the International Federation of Housing and Town Planning (London) which appeared almost simultaneously with the city planning conference in Washington. This issue contains reports on "Architectural Control over Town Development in Sweden," and "Architectural Control over Town Development in Germany." Every Swedish town has a governmental building board empowered to pass upon the general architectural merits of proposed new or remodeled buildings, the appearance of the mass, and the building's fitness in the general scheme. In Germany, there is no Reich legislation empowering such boards, but each state imposes its own laws.

Already, Mr. Cheney declares, there is a new consciousness abroad in America demanding that we no longer tolerate "the careless builder, the cheap contractor, the ugly junk, the shoddy building, the off-color and bad design, which not only depreciate their neighbors so insidiously and unfairly, but, worst of all, blight the attractiveness and the value of what little good architecture there is, and break down those intangible values which are the mainstay of every city." He continues:

"Architectural control and the architectural program of the city are as definite and inseparable a part of a comprehensive city plan as zoning, the major traffic street plan, the unification of rail lines and terminals, rapid transit, the park, playground and school system or the grouping of civic centers and public buildings—the recognized parts of a complete city plan. It is astonishing that, with the marked progress in municipal planning and government in this country, some of our chief authorities overlook this important matter—the architecture, the biggest, closest mass on the horizon of every city and of every life in it. . . .

"The spiritual values of life, the amenities as they are sometimes called—life, liberty, and the pursuit of happiness—are crushed and thwarted by our 90 per cent bad environment. It is time that we as a people definitely took them in hand to guaran-

tee every man his rightful heritage (not leaving to just the ten per cent of well-to-do, the protected home neighborhood with architectural control) and to give assurance to all that no badly designed or off-color building can be built that will spoil their environment or depreciate their investment. The ordinary man is just as much entitled to this protection as those who now have it by wealth. *In the next ten years he will be given it, as generally as he is now given the protection of zoning.*"

California is already acting to this end. Mr. Cheney cites the city planning law (Senate Bill 585) passed by the 1927 Legislature of his state, which largely follows the text of the standard city planning enabling act recommended by Secretary of Commerce Hoover for all states. In the California act the following clauses have been added:

"To best promote the amenities of life, health, safety, etc.," and "the improvement and control of architecture, and general embellishment of areas under its jurisdiction."

Bad Building Our Greatest Economic Loss

Emphasizing the importance of these clauses, Mr. Cheney says:

"The greatest economic loss of our time is in the 90 per cent of bad building that we allow to go up in our cities. There is little or no excuse for it. Building inspectors in practically all the cities will give you estimates, varying at most a few per cent, that only about ten per cent of the plans for buildings today are prepared by trained architects or others with any competence of design. They say that builders and contractors bring them as little as possible in drawings in order to get by the building code provisions for safety and strength of materials. Unless some architectural board of review is set up carefully to insist upon reasonable decency of design and color, as is now done by the building inspector in most cities as to safety of materials and framing, exits, etc., we cannot expect much improvement. The loss and waste will go on, the junk and depreciating ugliness of our cities will multiply.

"The economic value of consistently good architecture and good environment is large. Real estate developers, in practically every city, can point to tracts that were architecturally well protected, where the land values are generally two or three times, sometimes ten times, what they are in unprotected districts equally well situated."

Mr. Cheney contrasts with the high percentage of bad architecture in most of our older cities, the high percentage of good building in some of the cities and suburban communities that have established definite architectural control. Roland Park, Baltimore, he rates as 95 per cent good; Forest Hills, L. I., as 95 per cent; Shaker Heights, Cleveland, 80 per cent; Country Club District, Kansas City, 75 per cent; St. Francis Wood, San Francisco, 85 per cent; Palos Verdes Estates, Los Angeles, 95 per cent; Santa Barbara, 40 per cent; Nantucket (100 years old) 95 per cent; Yorkship Village, Camden, N. J., 95 per cent. Paris is 90 per cent good, and Amsterdam, 85. He says:

"Seventy-five years ago, Paris set out deliberately to be the handsomest city in the world. Paris is reported to have taken in $226,000,000 from visitors who came to enjoy its loveliness during 1926.

"We are beginning to have places in this country with similar ideals. A number of new towns in Florida have started well. The proposed New Orleans zone ordinance prohibits the modification, alteration, or construction of any façade out of architectural harmony with surrounding buildings in the *Vieux Carre*, or old French Quarter. Santa Barbara, Riverside, Palos Verdes, Sante Fé Rancho, among others in California, have taken, or are taking, distinct steps for architectural control and arcading of streets, group design and plazas and business buildings, establishment of arcaded towers out over sidewalks to relieve the terrible monotony of the checkerboard plan, etc.

Two Methods of Insuring Decency of Design

"There are obviously two methods of insuring decency of design. The first, and thus far the commonest, method is by requiring approval of all plans of new buildings in a tract by covenant in the deed or declaration of restrictions. The other, and the coming method, which undoubtedly will be used on a much larger scale, is by municipal check-up or inspection of design and color by the establishment of architectural boards of review under the police power by ordinance.

"In Roland Park, Baltimore, which is perhaps the finest residential suburb in America, they began to require, as far back as 1893, that plans for all buildings, fences and other structures, and their color schemes, must be approved in advance by a committee of competent architects. When the Palos Verdes Project was started in 1922, advantage was taken of the experience of Roland Park and other great subdivisions, and architectural control was put immediately into the hands of an art jury, established with a $300,000 endowment, so that the income would be sufficient to employ the best architects. . . .

"The financing of an architectural board of review is most important. Good men cannot be expected to serve unless they are paid at the rate of experts. Several such boards pay their trained members each at the rate of $50 per half-day. If the board is not endowed from the sale of land, a definite ten or fifteen per cent of the community association's annual maintenance tax should be set aside for the jury, as in the case of the Montecito and Burbank Art Juries.

"The Montecito case is interesting because here the signatures of several hundred property owners are being sought to self-impose a complete scheme of protective restrictions in an established district which has $7,000,000 of assessed values. This is the best method yet devised for the upkeep of private tracts and of shifting the burden of maintenance from the selling company to the purchaser.

"While municipal art juries and art commissions have for many years been passing upon and holding up the standard of public buildings, as yet only small beginnings have been made toward actual municipal supervision of private design. It will be necessary for some years to move cautiously in attempting to establish such control. The first municipal architectural board of review was established in Santa Barbara by ordinance in 1925.*

* See article, "Ten Million-Dollar Loss Due to No Building Code," by Charles H. Cheney, THE AMERICAN CITY, October, 1925, page 371.

. . . In eight months, after the earthquake, the Santa Barbara Board of Review passed on some 2,000 building permits and succeeded in getting practically every owner to build in the Old California style. Then petty politics intervened . . . the ordinance was repealed. But no one can take away those well-designed buildings, arcades and other structures, in their harmonious, appropriate style.

"We must set up a competent barrier against our 90 per cent of bad design, or no design. As secretary for several years to two art juries and advisor for several others, I have yet to see an owner who in the long run was not grateful to the art jury that protected him from his neighbors' possible carelessness and folly."

EDITOR'S NOTE.—Complete copies of Mr. Cheney's paper on "Progress in Architectural Control," including a supplementary paper by Elvon Musick, attorney, on the legal authority for such control, can be had of the Secretary of the National Conference on City Planning, 130 East 22nd Street, New York, for 25 cents.

The Health Insurance Policy of Springfield, Ohio

By L. Johnson

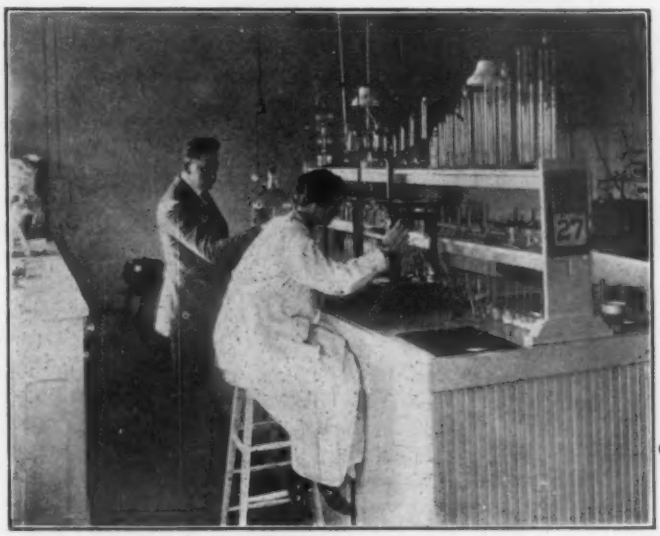
THE city of Springfield insures its own health through a policy which might well (in common parlance) "sell itself" to students of health problems in other cities because of its frictionless, even though highly efficient and far-reaching, operations. This policy, as formulated and made increasingly effective by Dr. Oscar M. Craven, Director of Health of Springfield and Clarke County (with all necessary cooperation from the city hospital and the new $350,000 County Tuberculosis Hospital), has produced health statistics for the city which compare favorably with those of other cities in the same class throughout the country. Not only this, it has recently broken its own complete past records in the matter of low annual death-rates.

The Health Department, under Dr. Craven's administration, having established a health promotion policy, outlines city-wide programs of health work, prepares and promotes public health educational propaganda. It conducts clinics for the diagnosis and treatment of incipient tuberculosis; it directs epidemiological surveys for the control of communicable diseases; and it carries on programs of vital significance in child health promotion.

Dr. Craven is accredited registrar of vital statistics, and also local Federal agent of the United States Children's Bureau. Not least among the reforms effected by the Health Department under his administration is the sharp decline in infant mortality from 87 in 1923 to 74 in 1926.

These records have been established through the faithful cooperation of seven local public health nurses who carry health department ideals into the homes where they visit regularly in friendly and advisory and educational capacities as well as to nurse the sick. Scores of ailing infants are constantly under treatment at the health center (located in the City Hall, where the Health Department laboratories and staff of sixteen workers are located). Other scores of well babies and older pre-school age children are brought there regularly for observation because one of the chief aims of the Health Department is the correction of all corrigible defects of the very young, to the end that these may be prepared to enter school with an even chance in competition with other small citizens.

Over 12,500 children in elementary public and parochial school grades are reached with



LABORATORY IN CITY HALL QUARTERS OF HEALTH DEPARTMENT, SPRINGFIELD, OHIO
Dr. Howard C. Lisle, Assistant Health Director, in charge of laboratory; and assistant in laboratory

A "HEALTH CORNER" IN THE EMERSON SCHOOL, SPRINGFIELD, OHIO
Dr. H. H. Hildred, school physician, and Miss Ella Lemon, school nurse

municipal health promotion programs. Three school physicians made complete physical examinations of 10,290 children, and school nurses made 5,356 home visits last year for instructing parents in hygiene and dietetics, and for the correction of physical defects. Special features of recent programs have included a diphtheria prevention campaign in which the State Health Department assisted. About 3,500 children were tested, 2,000 were immunized (and please note here that, in conformance with the general policy of tactfulness and consideration for the viewpoint of parents, the Health Department asked for and received written consent for every test given). A sight-saving class for children is another innovation. Those with marked and progressive ocular defects take part of their regular work and manual training instruction in classes with the normally healthful groups in order that they may not be stigmatized with being "different." Special classes are also held for the hard-of-hearing, and others for crippled children. Mental hygiene activities in the interest of the supernormal as well as the subnormal and mentally defective have proved conspicuously successful.

The Health Department has consistently advocated that the school system include health education as a regular recognized part of the teacher's daily work. The Department, it is urged, of necessity devotes the larger part of its activities among school children to those children having developed defects, thus permitting the healthful to fall constantly below par in appreciable numbers. "It is quite patent," said Dr. Craven some time ago, "that something must be done about this." That "something" he proceeded to do. First, he compiled and made available a "Teachers' Reference Manual of School Hygiene and Medical Inspection." He worked to inspire teachers to resourcefulness and enthusiasm in applying methods of health training. Now, in addition to informal and incidental inculcation of health ideals by the teachers, "health chore records" are kept by the students, and graded health readers are used in all grades from the third to the sixth.

Food and dairy inspection are among other activities that directly promote child health while raising general health standards. Dairy and cattle inspection; laboratory analyses of milk; shop, market, restaurant, and confectionery store inspection, are all part of the routine regularly carried on under direction of the Health Department. This routine has recently been expanded to include educational work among employees of the 600 dairies supplying the greater part of the city milk supply, and the inspection by trained veterinarians of all abattoirs. A goiter survey has been made. Typhoid fever has been greatly reduced through water and milk purification. Diphtheria is being brought under control. The death-rate in developed cases has dropped from 65 to 11 per cent, and is still going down. The mortality rate from tuberculosis has been cut in half through health education and scientific care.

Some time ago, Dr. Craven said: "All that modern health science has established in the control of communicable disease, the Springfield Health Department offers to the community." As a result, epidemics are fighting shy of this community, the death-rate is being steadily lowered, and youngsters are having a fairer chance to grow to robust adulthood and remain healthy when they arrive there. Where is there a public health policy that could insure more?

In looking up references to Volume XXXVI of THE AMERICAN CITY, consult the Semi-Annual Index at the end of the June issue.

Two Forms of the City Manager Plan

One Excellent, the Other Seriously Incomplete

By Lewis Jerome Johnson
Professor of Civil Engineering, Harvard University

THE city manager plan of city government exists in this country in two forms not yet adequately differentiated in the public thought.

The two forms are alike in their delegation of the people's legislative and administrative authority to a board of elected representatives, a commission or council, who determine policies and see that their policies and the bulk at least of the administrative affairs of the city are carried out through a single executive officer of their own choosing, called the city manager.

The earlier of the two forms, the commission-manager plan, is simply the old commission plan modified by adding the city manager as an official who should take over nearly all the administrative duties previously exercised by the commissioners. It embodies no change in the make-up or method of choosing the elective governing body, despite the radical change in the nature of that body's functions and duties.

The newer form,—called, for reasons which will appear, as we proceed, the P.R.-manager plan—corrects this fault by bringing the superior body, the council up to the highest possible level of fitness for its task and at the same time putting the voters in a more dignified, more powerful position than ever before.

The P.R.-manager plan is simply a consistently rounded out plan turning fully to account the best methods known for enabling not merely the routine administrative but all departments of the city government, including the much-neglected electorate itself, to do each its own proper work to the best advantage.

The sequence of considerations which led to the development of the P.R.-manager plan is, briefly, as follows: The provision of the manager relieves the commission, or council, of the great bulk of the administrative work previously lodged in that body. That body, thus relieved, becomes almost wholly deliberative in its functions. Its administrative acts, such as selection of the manager or of such other officers or boards as may be placed within its purview, though of critical importance, are very few in number and rare of occurrence. Moreover, they are of such a character as to call for precisely the same type of body as is logically required for legislative work, that is, a completely representative body.

Without the city manager, the importance of smoothness of working of a largely routine executive body required that each member of the commission should be as nearly as possible persona grata to his colleagues, that hence each should come from the same single group in the city, namely, the majority —of those who vote at least—notwithstanding the fact that this necessarily denied great sections of the electorate any representation whatever—of their own choosing. With the city manager, this radical infraction of democracy need no longer be endured. The way is cleared for the long over-due admission of representatives of all considerable groups of the electorate to a direct and assured voice in the government.

The way is wide open not only for majority control of the city council but for equally systematic and certain representation of minorities, with prospects that even the majorities themselves can thus get representatives more to their liking than ever before. In this way, attending upon the appointive manager idea there

High-Grade Council Essential for Success of City Manager Plan

In the drafting of city charters and in discussions of the progress and setbacks of the city manager form of government, too little attention has usually been given to the importance of a high-grade city council. For this reason we are glad to publish, with the permission of the Cambridge Tribune, the accompanying discussion of the two forms of the city manager plan, recently written for that paper by Professor Johnson. In sending a copy of the article to The American City, the author writes:

"Of course, I recognize that the worst of election systems may produce occasionally, or for a time at least, a good council, just as the hereditary system occasionally produces a good monarch. Nevertheless, I can see no escape from the conclusion that we must go to the limit to insure a council which will deserve and enjoy the confidence of the electorate and of a worth-while city manager.

"I realize fully that Proportional Representation is no substitute for intelligence on the part of the electorate; but it does, I believe, beyond any other known system, give the voters an incentive to develop and use the intelligence which they do possess. Therefore, I consider it of the highest importance."

opens an opportunity for a strengthened council, a council which should gradually if not immediately develop increasing usefulness and prestige with corresponding toning-up of civic spirit and morale throughout the electorate.

It is clear that a satisfactory manager and satisfactory work on his part cannot be hoped for without a high-grade council to appoint and direct him and back him up. Manifestly essential as the manager is, the council is an even more critical factor in the organization. For, if the council is able, loyal to the general welfare and in enjoyment of the vigorous confidence of the public, the selection of a good manager, his wise direction and proper support and generally good results can hardly fail to take care of themselves. Without a council reasonably approximating this type, no city manager can be expected to save the day. To put it another way, a good city council can protect the city against a bad or incompetent city manager, for it can remove him and appoint a better; but an honest, capable city manager cannot get good results in the face of an incompetent or corrupt city council. Even in a city manager plan, the city government cannot rise above the caliber and character of the officials whom the voters must in any event elect and put in charge. The council is therefore a feature of a city manager plan which should be at least as carefully considered as the manager idea itself. By no means less so, of course, is the share the voters must take.

What P. R. Is and Does

The P. R.-city manager plan recognizes and responds to these considerations. It turns fully to account the best methods human thought and experience have thus far developed for better ensuring that these popularly elected officials themselves shall continuously be of a type acceptable to the whole electorate. It does it by the simple step of democratizing the council, by making that body closely representative of the whole voting population, by making of it a condensation of the whole electorate into a small body consisting of the most trusted leaders and spokesmen of all the groups in the city large enough to be entitled to a share in the representation. This means complete representation in the government in place of representation of the majority group only, or of a large plurality group only, as was practically necessary, as above stated, for smooth working on the part of the old commission. Such a completely representative council is secured by the adoption of a method of voting which gives automatically to each group of like-minded voters a number of representatives closely proportioned to the numerical size of the group. It therefore goes by the name of Proportional Representation, or P.R. for short. Hence the type of manager plan based upon a council broadened and strengthened by P.R. may conveniently be called, as was done above, the P.R.-Manager Plan.

The commission-manager plan, though a highly important step forward in American city government, falls short by inadequate attention to the vitally important factor, the representative governing body—not to mention the electorate itself, the supreme body. This defect the P.R.-manager plan corrects up to the limit of present-day possibilities and without sacrifice of any of the meritorious features of the manager idea—quite the contrary.

Spread of the P. R.-Manager Plan

The P.R.-manager plan is in force in Ashtabula, Ohio (since 1915), Boulder, Colo. (since 1917), Cleveland (since 1923), and Cincinnati (since 1925). In 1926 it was accepted by the voters of Hamilton, Ohio, but has there not yet gone into effect. It is the preferred plan embodied in the Model City Charter advocated by the National Municipal League. Kalamazoo and Sacramento have had it in effect, but were forced to give it up by court decisions holding that P.R. was in violation of their respective state constitutions. In Ohio the constitutionality of P.R. has been established by the Ohio Supreme Court and sustained by the U. S. Supreme Court. And there are states enough where there is no doubt of its constitutionality—Massachusetts being probably one of them—to justify its most serious consideration. Thus far no American city which has adopted it has voluntarily given it up, though, as might be expected, there is plenty of opposition still visible on the part of the forces dislodged by its adoption. But there is no evidence of increasing strength on the part of this opposition, the only danger seeming to be the apathy of those who have the most to gain by holding the ground won.

P.R. is still unfamiliar enough, even to voters who understand the manager idea, to call for a brief explanation.

P.R. is at once a method of constituting and a method of electing the representative council. Nominations under P.R. are made by petition of a small number of voters precisely as in the double election system prevalent under the commission-manager plan. Instead, however, of putting a cross after as many names as there are offices to be filled, first in a primary and again three weeks or so later in a so-called final or run-off election, the voter, in the one single election which is all P.R. requires for doing the work of these two elections and do-

ing it better, marks a number 1 in the space opposite the name of his first choice candidate, a 2 after his second, a 3 after his third, and so on until he has thus voted for as many as he likes, and regardless of how many are to be elected. He may vote only a first choice, if he is so disposed—and is so short-sighted, because bulleting in this system gives no advantage but rather the contrary. Having marked his ballot, he puts it in the box. Here the voter's part in the balloting ends. He then has only to await the final returns, for by this system, let it be clearly understood, the primary and final elections are consolidated into a single election; in other words, the primary is eliminated, but in a manner netting a substantial gain for people's rule, not a loss.

Counting the Ballots Under P. R.

Each ballot under P.R. will be counted for the candidate having the highest choice thereon indicated who can be helped by it. It is always recorded in favor of the voter's first choice and it will finally help elect that first choice candidate, unless that candidate is either so strong that he does not need that vote for his election or is preferred by so few as to be out of the running. And in that case, the ballot is prevented from being wasted by being transferred to the voter's next preference. At all events, the voter's expressed choice is accurately carried out so far as the numbers who vote as he does will justify. More than this an individual voter in a democracy cannot expect.

The demonstration elections which advocates of P.R. are always ready and glad to hold make clear just how the ballots are counted. The actual process is found to be readily within the comprehension of upper grade grammar school pupils. Voters learn to understand the counting system just as they learn the rules of baseball by seeing the game played, even if they do not themselves actually play, rather than by reading printed directions. Experiences in this country and elsewhere, especially in Ireland, where it is used for selecting the representatives of the national parliament of North Ireland as well as of the Free State, proves its practical working simplicity even where used on a nation-wide scale.

Among the chief reasons for P.R. are its fairness; the confidence and interest in the government which it engenders; the completeness with which it promotes order and decorum in elections; the increased attractiveness it lends to standing for the city council from the viewpoint of those who have won the confidence of their fellow-citizens in other fields; the improved prospect it opens and holds open for honest, able, far-seeing leadership; the encouragement it offers to progress by reasonably prompt recognition of growing minorities; the safeguard it provides against premature change by the more effective entrenchment it establishes for majority rule—not merely rule by a majority of the representatives of one possible majority of all the electorate, but rule by a majority of the representatives of all the considerable groups in the city—that is, a majority the personnel of which must be constantly changing according to the question under discussion. That this real majority may have its rightful power is hence one reason sufficient in itself for systematic minority representation. P.R. retains all the advantages offered by preferential voting, in protection to majority rule and otherwise, and does it in the best known manner. In fact, the P.R. ballot is itself a type of preferential ballot, and the type that experience has shown to be the best suited for its excellent purpose.

A Simple and Practicable System

Space does not permit fuller description here of P.R. nor does the topic of this paper require it. Hoag and Hallett's "Proportional Representation," recently published, and the pamphlets of the P.R. League, 1417 Locust Street, Philadelphia, cover the case as fully as any reader may wish.

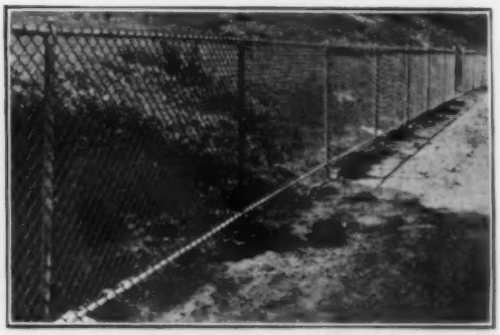
Doubts as to the feasibility of popularizing P.R. in an American city have been dispelled by experience; the simplicity and practicability of its use even in the highly mixed populations of our great cities have by the same means been established. And the modern methods of election at large, with elimination of national party designations, now happily so widely accepted in American cities, offer the fairest of fields for the use of P.R.

Except where local constitutional difficulties may for the time be insuperable, P.R. should, therefore, be included in the city manager plan by all who wish to see that plan fully democratized and to see it give its very best results.

But even so, as every enthusiast should be warned and as critics should make an effort to remember, no results can come out of even the P.R.-manager plan superior to the intelligence which the voters and their representatives put into its use. The supreme and sufficient merit of P.R., the highest merit any political device can have, is that it gives the best means known for exercise of such intelligence and public spirit as exists, and at the same time offers the strongest inducement known to the development of civic comprehension, zeal and wisdom on the part of the whole electorate, both those in office and those not in office.

Protected Parks and Playgrounds

TENNIS COURTS ON A CORNER IN A RESIDENTIAL DISTRICT IN BINGHAMTON, N. Y.
Cutting across lots is prevented by the fencing, and after rains the gates in the fences can be locked to keep players off the courts until the clay surface is dry and hard



IN MORNINGSIDE PARK, NEW YORK, THIS STRETCH OF FENCING COMPELS PEDESTRIANS TO TAKE THE PROPER PATHS

THE SWIMMING POOL IN KLAMEN PARK, KANSAS CITY, KANS., IS CLEANER AND SAFER BECAUSE IT IS FENCED IN

Photographs by courtesy of Page Fence & Wire Products Association

MONTEFIORE PARK, NEW YORK CITY, WITH STONE BENCHES RECESSED INTO THE FENCING THAT PROTECTS THE PLOTS OF GREEN

Population Density as a Factor in Traffic-Accident Rates

By William J. Cox

Assistant Professor, Engineering Mechanics, Sheffield Scientific School, Yale University

CAREFUL records kept over a period of years show that in New York City the annual number of automobile accidents in which persons are injured or killed is between one-fifth and one-sixth the number of automobiles in the city. Stated conversely, for every hundred automobiles in that city, each year there are from sixteen to twenty personal-injury automobile accidents.

This figure is very decidedly different from that which obtains in the average large American city. In Chicago there are five or six personal-injury accidents per year per hundred automobiles; in St. Louis, Providence and Cleveland, six or seven; in Detroit about four; and in Washington, New Orleans, Seattle, Indianapolis, Denver and Los Angeles, only about three. The average for all of our cities of 100,000 population and over is probably between four and five such accidents per year per hundred automobiles.

The congestion of automobile traffic in the streets of New York is something that might occur to one as a cause of this marked difference in driving hazard. The congestion of vehicles in some parts of that city is very great. It is reckoned that some of the avenues on Manhattan have almost reached their full traffic capacity. But two considerations show that this is not the cause of the high New York accident rate. In the first place, accidents serious enough to cause personal injury are infrequent in a very dense vehicular traffic, as in the neighborhood of Forty-second Street and Broadway. Driving there is difficult but, from a personal-injury standpoint, not exceptionally hazardous. The second consideration is that the difference in vehicular congestion in New York and in any other good-sized American city, is not nearly so great as is the difference in automobile accident rates. Thus, with five times the accidents per hundred cars that Los Angeles has, New York has nowhere near five times as many automobiles. In fact, with one car to every ten or twelve persons living in New York, and one car to every three persons or less living in Los Angeles, there are almost as many automobiles in the latter city as in the former. When it is considered that New York has a longer street system than Los Angeles has, it may safely be said that Los Angeles has more automobiles per mile of streets than New York has, together with vastly fewer serious accidents per car in use.

Another possible thought is that differences in the regulation of traffic might account for differences in driving hazard as between cities. Undoubtedly such differences play some part, but it would be absurd to suppose that they fully or anywhere nearly account for a difference of five to one in accident rates as between New York and many another city. The

City Planning, Zoning and Traffic Segregation Essential Factors in Reduction of Automobile Hazards

In this article the author shows that the accident rate per car is as a rule directly proportional to population density; that decentralization of cities reduces the hazard per car; but that as the ratio of automobiles to population tends to increase in more than direct proportion to decentralization, automobile fatality rates per unit of population are often greater in decentralized than in congested cities.

In a paper presented at the May meeting of the American Society of Civil Engineers, in New York, the author discussed his studies of automobile accidents in much greater detail than the space limits of the present article permit. He advocated more adequate zoning, street-planning and motor-vehicle legislation, and expressed, among other conclusions, the following:

"As the majority of collisions between automobiles in the average city occur at a comparatively small number of intersections, proper time-segregation measures may be quite effective in reducing the hazard of collision between automobiles. The situation in almost any city is susceptible of improvement through such means.

"As most automobile collisions with pedestrians occur in residential districts, particular attention should be given to the segregation of pedestrian from automobile traffic in those districts, as far as possible through measures which will naturally drain the greatest possible proportion of automobile traffic into arterial ways.

"It seems not to be generally realized that the sore spot in the traffic-accident situation is the crowded residential or tenement district, that for every person killed or injured at a grade crossing, in the more urban states at least, ten are killed or injured in the slums and near slums."

problem is deeper than this. If more persons are injured in New York per hundred automobiles than elsewhere in the country, it is because the hazard of automobile operation is inherently greater in New York than elsewhere.

Accident Rate Proportional to Population Density

One correlation, and apparently only one, is found to exist between accidents per hundred automobiles and other physical characteristics of our cities. That correlation is that the accident rate is directly proportional to the population density—to the number of *people*, rather than automobiles, per mile of the city's street system. Thus New York, with its very high driving hazard, has a population density far greater than any other American city. Los Angeles, with about the same number of automobiles (per mile of street) to cause injuries, has only one-fifth the persons (per mile of street) to be injured, and therefore each automobile has only one-fifth the chance of injuring someone.

By ranking the thirty or so largest cities in the United States in order of their population densities as expressed above, it is found that to a very remarkable extent the cities are thereby also ranked in the order of their personal-injury accident rates per hundred automobiles. For example, in each of the following cities the population density is greater than in the next succeeding city:

New York	Louisville
Philadelphia	Cincinnati
Providence	Los Angeles
Chicago	Denver

Also in each of these cities, the personal-injury automobile-accident rate *per hundred cars in use* is greater than in the next succeeding city. This list is typical, and could be extended to cover all but some half-dozen of the thirty largest cities in this country, and probably could be equally well extended to smaller cities.

This correspondence is too exact to have been governed by blind chance, and in fact it can be shown mathematically that this is the variation in driving hazard that should obtain. Simply stated, the reason is that every time the path of an automobile crosses the path of another automobile or of a pedestrian, the chance of an accident exists. For each mile of travel of an automobile, the denser the population, that is, the more persons using that mile of street, the more chances of the automobile's having a collision.

A good many other factors than this enter into the make-up of the final hazard, but it appears that in general they cancel one another. For instance, the proportion of the population using automobiles, as compared with those who are pedestrians, has little to do with the personal-injury hazard of automobile operation, because while each new automobile which comes on the streets increases the hazard of an automobile collision for every other automobile in the city, the new automobile has taken some pedestrians off the streets and has thus reduced, for every other car in the city, the hazard of collision with a pedestrian.

It may be repeated, then, that reasoning leads to the conclusion that the personal-injury hazard of automobile operation in a city is proportional simply to the density of population of the city; and that statistics show that, in the very great majority of cases, this is the relationship which actually does obtain.

It should be carefully noted here that this discussion relates to those accidents—usually the more serious accidents—in which someone is injured or killed. It does not relate to the multitude of minor collisions which result in a bent fender or the like and which are wholly a function of the density of vehicular traffic.

Exceptions Resulting from City Planning and Motor-Vehicle Legislation

To the foregoing general principle there are a few exceptions which open up very valuable lines of thought.

Washington, D. C., has an accident rate tremendously below what would appear reasonable from a study of its population density. With a population more dense than that of Providence or Cleveland, it has only about one-half the automobile accident rate of those cities, and this relationship has held good for some years. Whatever the causes—there are doubtless several—it is significant that Washington is the American city earliest and most carefully and completely planned. From a traffic standpoint, it offers a most interesting field of study.

Another group of cities at first glance apparently form an exception to the general principle. But on closer examination it appears that these cities, all located in Connecticut, Maryland, Massachusetts, and New Jersey, as between themselves have driving hazards proportional to their population densities, while in comparison with the larger group of cities scattered over the country, their hazards are uniformly lower by about one-third than would be expected. The correlation here is by type of motor-vehicle legislation. In all these cities local ordinances are supported by a motor-vehicle law which provides for licensing all motor-vehicle operators and the withdrawal of

the driving privilege in cases of proved unfitness. It puts the operation of an automobile in a new light, as a privilege conferred by the state and not as an inherent right of the citizen, and has apparently given rise to a much greater feeling of responsibility on the part of the average driver. In Massachusetts, where every automobile must carry liability insurance, the saving to automobile owners in the lowering of insurance rates below what it can be shown they must have been in the absence of the state motor-vehicle law, amounts to at least $7,000,000 or $8,000,000 and more probably to around $15,000,000 a year.

Effect of Decentralization

Since the density of population governs the accident hazard per automobile, decentralization of cities should, and does, reduce the hazard per car. Since, however, it is uniformly true that the ratio of automobiles to population increases in more than direct proportion to the decentralization, automobile-fatality rates per unit of population, or per 100,000 persons, as they are usually expressed, are often greater in decentralized than in congested cities. This is an inescapable penalty of the more general automobile use in decentralized cities, and should not blind one to the fact that hazard per car is decreased by the decentralization. If the increase in automobile use is a bad thing, that is quite another problem.

Population density governs accident occurrence because it usually measures the number of crossings, per unit distance, of the paths of moving population units. Measures which safeguard or which render unnecessary these crossings have the same effect as decentralization of population, and we must look increasingly to such measures in the future as we exhaust the possibilities of legal regulation. A much safer segregation of vehicular and pedestrian street travel is something to which we can come, and must and will come, in the future.

The great problem before us being to get vehicular traffic safely through crowded residential districts, we shall no doubt see automobile traffic, where it leaves the central business area to enter such districts, more and more collected in great arterial ways, from which the pedestrian will be excluded, being overpassed or underpassed, and being kept from playing or wandering in the roadway; while simultaneously the bulk of residential streets will be drained of all but strictly local vehicular traffic and given over more and more to pedestrian use.

So far, comparatively little constructive thought has been given to this matter of a better traffic distribution and segregation. This condition of affairs cannot long continue.

A Model Shade Tree Ordinance

By Donald H. Fowler

IN the good old days before bathtubs and plumbing, and even up to the radio age, the citizens of Kent, Ohio, lived in a state of delightful uncertainty as to what to do next, if any thing, in regard to the proper planting and care of street trees. No definite system was established or followed. There were continual complaints and minor battles.

People on the same street or even in the same block often felt that they should be free to select the kind of tree to be placed on the public highway in front of their property. The result was a tendency toward a discordant medley of varieties which made for anything except uniformity of planting. Some trees were pruned in such a way that the branches started high enough to be clear of the street and of passersby on the walks. Other trees were trimmed up little or not at all. Perhaps the property owners felt that low, drooping branches were more attractive, regardless of their interference with pedestrians and umbrellas, and with vehicles passing in the street. Differences in tastes were difficult of settlement.

As in many cities, there were numerous poplar trees, planted because of their rapid growth. That was their only good point. They were undesirable. Their drooping foliage kept the walks, streets and lawns in a continual appearance of untidiness. The roots traveled far and wide, clogging sewers about the neighborhood, doing costly damage. Property owners frequently could not see the wisdom of replacing them with trees of real beauty and value. Light and power companies did some irreparable butchery to trees in clearing a way through them for wires.

These and many other problems faced the patient but distracted friends of trees in the city of Kent. Now these difficulties belong to yesterday. In 1924 determined steps were taken to create a practical and wise shade tree ordinance that would correct existing conditions and make Kent a city of beautiful, well-cared-for trees.

It was the privilege of a local organization, the Davey Tree Expert Co., to cooperate in the building of this ordinance by supplying information secured during a quarter of a century spent in caring for trees throughout the greater part of the United States and in Canada. The ordinance took shape, was completed, and has been in operation for a sufficient length of time to show its value. It is now believed to be a model on which other similar ordinances could well be based. Since it is comparatively short, it is here quoted in full:

An ordinance relating to a Shade Tree Commission and to the planting, protection, regulation, and control of shade trees planted or growing upon the public highways of the

city of Kent, Portage County, Ohio.

Section 1. There shall be appointed by the Mayor a Commission of three property owners, who shall serve without compensation, and who shall have exclusive and absolute custody and control of, and power to plant, set out, remove, maintain, protect, and care for, shade trees on any of the public highways of the city of Kent in co-operation with the Department of Public Service. Such Commissioners shall be appointed for a term of two, three, and four years respectively, and, on the expiration of any term, the new appointment shall be for a term of four years.

Section 2. Said Commission shall have authority to make such rules and regulations as it deems applicable to the city of Kent.

Section 3. No individual or officer or employee of a corporation shall, without the written permit of the Shade Tree Commission, cut, prune, break, climb with spurs, injure, or remove any living tree in a public highway; or cut, disturb, or interfere in any way with the main roots of any tree on a public highway; or spray with any chemicals or insecticides any tree in a public highway; or place any rope, sign, poster, or other fixture on a tree or guard in a public highway; or injure, misuse, or remove any device placed to protect such tree on a public highway except in case of immediate necessity for protection of life or property.

Section 4. No shade or ornamental tree or shrub shall be planted in any of the public highways of the city of Kent until such tree or shrub shall have first been approved and the place where it is to be planted designated by the Shade Tree Commission, and a permit granted therefor.

Section 5. No person shall fasten a horse or other animal to a tree in a public highway in the city of Kent, nor cause a horse or other animal to stand so that said horse or animal can injure such a tree.

Section 6. No person shall, without the written permit of the Shade Tree Commission, place or hereafter maintain upon the ground in a public highway, stone, cement, or other substance which shall impede the free passage of water and air to the roots of any tree in such highway, without leaving an open space of ground outside of the trunk of said tree in area not less than four feet square.

Section 7. In the erection or repair of any building the owner thereof shall place such guards around all nearby trees on the public highway as shall effectually prevent injury to them.

Section 8. No person shall pour salt water upon any public highway in such a way as to injure any tree planted or growing thereon.

Section 9. No person shall, without the written permit of the Shade Tree Commission, attach any electric wire, insulator, or any device for the holding of an electric wire to any tree growing or planted upon any public highway of the city of Kent.

Section 10. Every person or corporation having any wire or wires charged with electricity running through a public highway, shall securely fasten such wire or wires so that they shall not come in contact, so as to injure, with any tree therein.

Section 11. Every person or corporation having any wire or wires charged with electricity running through a public highway, shall temporarily remove any such wire or wires or the electricity therefrom when it shall be deemed necessary by the person or corporation and the Commission, in order to take down or prune any trees growing in a public highway, within twenty-four hours after the service upon the owner of said wire or wires, or his agent, of a written notice to remove said wire or wires or the electricity therefrom, signed by two members of the Shade Tree Commission, or its secretary, upon the order of such Commission

Section 12. It shall be the duty of any person being the owner or agent of any lot or parcel of land fronting on any street, avenue or public ground of said city, in front of which trees are planted and growing, to keep such trees trimmed as follows:

First—All trees having a diameter four feet from the ground of six inches or more shall be trimmed up to fifteen feet from the ground.

Second—All trees having a diameter of from four to six inches shall be trimmed up to ten feet from the ground.

And it shall be the further duty of such owner or agent of any such lot or parcel of land to cause all trees standing upon any such lot or parcel of land and having branches extending over the street to trim such trees as above provided.

Section 13. It shall be unlawful for any person or persons to plant any variety of what is commonly known as poplar trees within the streets of said city of Kent, Ohio.

Section 14. Any person who is the owner of any poplar tree that stands within the lines of any street in said city of Kent, Ohio, shall cause the same to be removed, killed or girdled within sixty days from and after the passage of this ordinance.

Section 15. No person or corporation shall prevent, delay, or interfere with the Shade Tree Commission or its employees, in the planting, pruning, spraying, or removing of a tree on the public highway, or in the removal of stone, cement, or other substance about the trunk of the tree.

Section 16. Nothing herein provided shall prohibit the proper trimming of trees for reasonable clearance of wires under the supervision and control of the Commission.

Section 17. Every repeated violation by the same person of any provision of this ordinance, or the continuation of the violation of any of its provisions on any day or days succeeding the first violation thereof, shall constitute an additional violation of such provision.

Section 18. Any one violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not to exceed fifty dollars.

With this ordinance and a newly established systematic and scientific plan for street planting, it is the belief of observers that it will now be possible for Kent to increase the unusual beauty of its tree-lined streets and become a model forest city to which the nation can look for advanced and tested ideas on the planting, protection, and regulation of street trees.

What Kent is doing can be done by other cities. The results are worth the effort—and much more, for fine trees do much toward making a desirable city to live in.

Pavement Brings Speedy Cash Return

AN 82-mile pavement in Maricopa County, Arizona, paid its entire cost in one year, nine months, and nineteen days, according to an article by Ira L. Wood in *Arizona Highways*. Mr. Wood states that 2.6 cents a mile is the saving in gas and oil, tires, depreciation, and repair bills on the average car used on a paved road instead of on a dirt or gravel road. As authority for this figure, he quotes H. G. Borden, former Dean of the College of Engineering, Ohio Northern University.

The Maricopa County road, going east and west from Phoenix, last year carried the equivalent of 816,000 vehicles its entire length. Multiplying this by 81.9 miles, the length of the road, gives 66,830,400 car-miles. At 2.6 cents a mile, the saving to vehicle owners in one year is $1,737,580.40.

The cost of the road was $2,858,500 and the interest at 5 per cent is $143,325. Deducting the interest from the amount saved to motorists, there is a net saving of $1,594,265. Dividing the cost by the saving, you get the time, quoted above, in which the road pays for itself.

"There are also several items that are not included in the 2.6 cents," he says. "These you have to put your own valuation on. One is the discomfort of driving over a dusty, rough road, and you might add in a few laundry and cleaning bills when you figure this item, and delays due to broken springs or mudholes."

"Following the Green" to Chicago's North Shore Suburbs

By Ralf Toensfeldt
Consulting Engineer, Ryckoff Construction Co.

SHERIDAN ROAD, Chicago, is the extension of the world-famous Michigan Boulevard northward to the limits of the city, and therefore receives the entire traffic from the most congested thoroughfare. Some of the traffic filters into the side streets as it goes northward, but much of it is through-traffic to the suburbs north of Chicago, since Sheridan Road is also the main highway to Evanston, Wilmette, Kenilworth, Winnetka, Highland Park and the North Shore, where many Chicagoans live.

Sheridan Road is divided into two sections. The one adjoining Michigan Boulevard begins at the new lift-bridge across the Chicago River and terminates at Devon Street. This section is under the jurisdiction of the Lincoln Park Commission. The other section begins at Devon Street and terminates at the dividing line between Chicago and Evanston, and comes under the jurisdiction of the North Shore Park Commission. The latter section is being equipped with a comprehensive traffic-control system.

This section of Sheridan Road comprises 8,300 feet of 60-foot roadway located one block from the Lake Front. Its average traffic density is about one car every two seconds. There are two peaks, one occurring between 8 and 9 in the morning and the other between 5 and 6 in the evening, when the density rises to between three and four times as much as the average. This condition also holds true for most of Sunday afternoons and evenings during the summer months. It had therefore come to a point where a definite scheme of control became absolutely necessary.

Why the "Wave" System Was Not Adopted

Of course, whenever any system of traffic control is considered, the first thought is always that of relieving congestion by speeding up traffic, by eliminating waits, or by both. It is for this reason that a cascade or wave operation was first considered. In this scheme successive signals are operated in sequence at predetermined intervals. The intervals are dependent upon the spacing of signals and upon the desired speed of traffic. With proper timing it would therefore be possible to move a car through the entire system without stop, at a predetermined rate of speed. As applied theoretically to Sheridan Road, the system worked out perfectly at a speed of 27 miles per hour with a set of signals at every third intersection (approximate 1,000-foot spacing). This would mean that incoming and cross-traffic would be signal-controlled at every third intersection, but would have to filter in and through Sheridan Road without signal control at the intermediate intersections.

This scheme would probably work out excellently on an ordinary traffic street, but, because of its proximity to Lake Michigan and also because a large residential district lies adjacent to it to the west, a pedestrian cross-traffic of

SHERIDAN ROAD TRAFFIC SIGNAL, CHICAGO

no small proportion must be given serious consideration. Further, there are three points of heavy pedestrian crossing, one a large theater with its parking space across the road, the second an express elevated station, and the third a university with its crowds at athletic events.

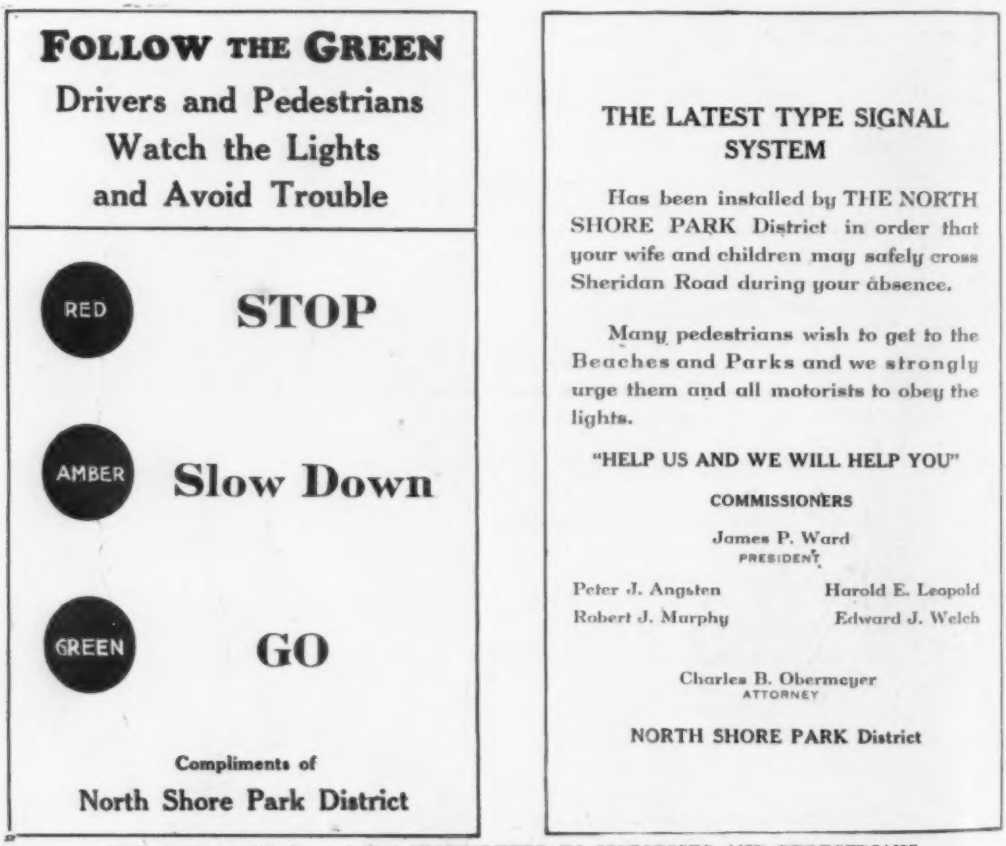
Synchronous System, with Central Control, Adopted

It is the safeguarding of pedestrians that necessitated signal equipment at each intersection, giving them a definite time interval for crossing. Fitting these intermediate signals into a cascade or wave operation was another story. By lengthening the proportion of green on the Boulevard and shortening the time for cross-traffic, it was possible to work out a schedule of operation which would function, but because of the shortening of the cross-traffic period and because of the resultant non-sequent operation of some of the intermediate signals, it was felt that the pedestrians might be placed in jeopardy.

This study disposed of, there remained but one efficient way, that is, what is ordinarily known as the synchronous system, in which the entire Boulevard would be green at one time. A time study of traffic movement indicated that one stop only would be necessary for most of the traffic with the cycle selected, and a maximum of two stops for stragglers. It would, further, not require too long a wait for cross-traffic, yet give a definite time to it at each intersection.

Here, again, the least expensive system would have been one employing the synchronous control above described, eliminating interconnecting cable. However, because of the fact that a change of total time-cycle was considered necessary during certain heavy-traffic periods and for handling the heavy motor-car travel, it was considered advisable to introduce some easy method of varying the cycle to fit the varying condition of traffic, so a central control system was decided on.

During periods of maximum traffic in the morning and evening, there is virtually no pedestrian traffic from and to the beaches. It is therefore logical to lengthen the Boulevard time during these hours. This could not be conveniently done with synchronous timers,


FOLLOW THE GREEN
Drivers and Pedestrians
Watch the Lights
and Avoid Trouble
RED
STOP
AMBER
Slow Down
GREEN
GO
Compliments of
North Shore Park District
THE LATEST TYPE SIGNAL SYSTEM
Has been installed by THE NORTH SHORE PARK District in order that your wife and children may safely cross Sheridan Road during your absence.
Many pedestrians wish to get to the Beaches and Parks and we strongly urge them and all motorists to obey the lights.
"HELP US AND WE WILL HELP YOU"
COMMISSIONERS
James P. Ward
PRESIDENT
Peter J. Angsten
Harold E. Leopold
Robert J. Murphy
Edward J. Welch
Charles B. Obermeyer
ATTORNEY
NORTH SHORE PARK District

THE TWO SIDES OF A CARD DISTRIBUTED TO MOTORISTS AND PEDESTRIANS
In the original the circles are printed in the three colors indicated

without interconnecting cable. Hence, an inductive type of master timer was selected; and, in order to arrive at a more reasonable cable cost, relays or contactors were introduced at economical points, by means of which new supplies of energy could be called upon for the operation of distant signals without its being seriously affected by voltage line-drop.

The Ingenious Timing Device

The timing device chosen is an ingenious one. It consists of a contacting device and a motor driving it. Instead of the usual wiping contacts, it contains the necessary number of spring contact arms, which are pushed together by means of rotating cams. These cams are given their motion by a motor built upon the principles used in the construction of power meters and therefore extremely accurate and fool-proof. The cams are so mounted that their position can be shifted by means of levers operated from the outside of the mechanism, so that the proportion of red, green, and amber can be varied at will between certain limiting ranges. The total cycle can be varied in the induction type by shifting a lever, but in the synchronous type it requires a change in gearing. Furthermore, the simple shifting of an external lever interposes a hand control, which with the synchronous type affects only the signals immediately controlled by that timer, but with the inductive type and the system chosen will control all the signals on the Boulevard.

The signals and timers were manufactured by the General Electric Company. The signals are of the four-way, three-color type, having a lamp for each indication in each direction. The signals are mounted, two to an intersection, on Chicago Concrete Post Co. concrete standards, matching the street-lighting standards in design and finish.

Location of Signals and Handling the Amber Warning

These signals were placed on the far corner of the intersection with respect to Sheridan Road traffic, so as to give greatest visibility to traffic in the normal range of vision. This, I believe, is important, because I have personally witnessed several accidents occasioned by a driver's attention being diverted from its usual and proper focus, in front of his machine, by incorrectly placed signals, resulting in hitting pedestrians on starting up after release by the signal. Such a location also insures an unobstructed view of the signal to a greater number of drivers, since it guarantees a clear space of at least 50 feet between the front row of machines and the signal.

Another somewhat unusual feature of this system will be the handling of the amber warning. This indication will appear only when the signal is changing from green to red, and not during the change from red to green. There is no need of warning a driver that he is about to be given a "Go"; as a matter of fact, giving such a warning only encourages "sneaking," or starting prematurely, and may cause accidents.

The system was conceived and authorized by the North Shore Park Commission, whose President is James P. Ward and whose members are Peter J. Angsten, Robert J. Murphy, Harold E. Leopold, and Edward J. Welch. It was installed and made operative by A. M. Ryckoff, electrical contractor, of Chicago and St. Louis.

From now on, the slogan on Sheridan Road is to be "Follow the Green."

Important Topics to Be Discussed at the Recreation Congress in October

THE fourteenth national Recreation Congress will be held in Memphis, Tenn., October 3-7, under the auspices of the Playground and Recreation Association of America.

At a general session, W. F. Jacoby, Director of Parks and Recreation in Dallas, will give an address on his methods of arousing public interest in, and knowledge of, birds, animals, and plants in Dallas parks. L. H. Weir will report on his two-year study of municipal and county parks and forests.

Herbert May, of New York, who is completing a study of recreation in France, Germany, England, Denmark, Czecho-Slovakia and Austria, will summarize his findings for the delegates. Dr. A. K. Browne, Director of Physical Education, Peabody College, Nashville, Tenn.; John A. Lapp, retiring President of the National Conference of Social Work; Mrs. Charles Sewell, of Chicago, a member of the Department of Home and Community, American Farm Bureau Federation, and George Hjelte, Director of Recreation, Los Angeles, are also on the program.

C. C. Hieatt, of Louisville, Ky., President of the National Association of Real Estate Boards, will present the subject of settting aside recreation areas in new subdivisions. Other important topics will be municipal golf, swimming pools, play programs for small children, and the kind of recreation that girls want. Demonstrations of games, dramatics, music, and an exhibit of handcrafts, apparatus, materials and literature used in successful work in many cities will be features.

Joseph Lee, of Boston, President of the Playground and Recreation Association of America, and John H. Finley, Associate Editor of the *New York Times*, will preside.

For details address T. E. Rivers, Secretary of the Congress Committee, 315 Fourth Avenue, New York.

Weed Eradication by Community Effort Reduces Hay Fever

By N. S. Ives

DR. GEORGE TURNER, a physician of El Paso, Texas, found that 90 per cent of the hay fever in that city was caused by tumbleweed, and that fact was responsible for an extensive weed eradication campaign begun in El Paso during May and June, 1927.

During a convention of the El Paso County Medical Association, early in May, Dr. Turner, who is a hay-fever specialist, interested other members of the Association, also the Health Board, the Women's Auxiliary of the El Paso County Medical Association, and the Chamber of Commerce. A petition was presented to the City Council by representatives of these organizations, requesting that a weed eradication section be created by the Council in order that El Paso might be free from the menace of hay fever. The petition promised the cooperation of the organizations represented by the joint committee, and, for defrayment of expenses incurred, offered money from an emergency fund resulting from a publicity campaign conducted in local newspapers.

Alderman A. B. Poe detailed twenty-five city laborers to begin work destroying the tumbleweeds at once, but, owing to its being almost time for the weeds to bloom, the Women's Auxiliary of the Medical Association sponsored a crusade by the school children of the city. The latter put the work on with a rush. Through arrangements offered by the Women's Auixiliary, the children were paid 1 cent for every 25 weeds brought to school, and thousands of children scoured the streets, lawns, and even gardens for weeds. Later the payment plan was changed to deal with schools as a whole, instead of individual pupils, the school gathering the most weeds receiving a prize of $15, the one with the next largest pile being paid $10, the third $5, and other schools paid according to their work.

By the middle of May, 25 truck-loads of green weeds were hauled to the city dump, and as many more dry ones were burned by city employees.

Women leaders in El Paso health work, under the direction of the Women's Auxiliary of the Medical Association, not only contributed plans and cash—they also gave real back-bending labor to the campaign. Fifty women, under the leadership of the Auxiliary, which had partitioned the city off into zones, worked at pulling weeds, and others went from door to door with specimens of tumbleweed, showing people just what it looked like. One of the difficulties of eradication was that many people unknowingly cultivated it in their gardens thinking it was a flower, while one point in favor of the campaign was the fact that the weeds didn't grow except where the ground had been stirred. It was mostly confined to curbings, alleys, and unkept edges of lawns.

To solidify and perpetuate the work begun by the volunteers of the civic clubs, the women's organizations, the school children and the public at large, the county authorities promised to eliminate the weed from the edges of the highways in the valley above and below the city, and the City Council passed an ordinance designed to drive such growth from the city.

While the tumbleweed is credited with making the most hay fever trouble in El Paso, the flowers of other weeds give off irritating pollen, among them being careless weed, sea blight, bur ragweed, western ragweed, cocklebur and orach, or annual salt bush, and the Council proposed to make owners, renters, or anyone in control of the property responsible for letting the offending plant flower. Johnson grass and Bermuda grass also give off irritating pollen, but in the case of Bermuda its growth was not forbidden, although growers were urged to keep it trimmed so that it could not flower.

In recommending the eradication of weeds, Dr. Turner said they caused a greater financial loss than any other disease-producing agency amenable to public health measures. At the first of June he announced that there were 1,000 fewer cases of hay fever in the city than last year at the same season.

Court Decisions Relating to Public Health

(From U. S. Public Health Reports)

City Held Liable for Negligence of Employee Driving Garbage Truck

(Michigan Supreme Court; Foss v. City of Lansing, 212 N. W. 952; decided April 1, 1927.) An action for damages was brought against the city of Lansing, the plaintiff alleging that a city employee who was driving a garbage truck had negligently run into her automobile, injuring her and damaging the automobile. The city's contention was that the employee was engaged in performing a governmental function when the accident occurred and that, therefore, it was not liable for his negligence. The city, in the disposal of garbage, made some profit, which helped to reduce the cost of disposal. In the trial court there was a directed verdict for the city, but the Supreme Court reversed the judgment of the lower court, saying:

"Whatever the holdings may be elsewhere, we are of the opinion that the rule in Michigan is that, if a municipality is engaged in a governmental work with an incidental profit, it is liable the same as a private corporation would be."

Ordinance Forbidding Retail Sale in Certain Area of Fresh Meat or Sea Food Except in City Market Held Valid

North Carolina Supreme Court; Angelo et al. v. City of Winston-Salem et al., 136 S. E. 489; decided January 26, 1927.) The charter of the city of Winston-Salem provided:

"The board of aldermen shall have the power to enact ordinances in such form as they may deem advisable, as follows: . . . To establish, regulate, and control the markets or market buildings; to fix the location of any market building, prescribe the time and manner and place within the city wherein marketable articles, such as meats, perishable vegetables, fish, game, and all other kinds of perishable food or diet shall be bought or sold."

An ordinance of the city, adopted June 18, 1926, made it unlawful from and after December 1, 1926, to sell at retail fresh meats or sea foods at any

place within a defined area of the city except in the city market. The area involved extended approximately four-fifths of a mile from the city market in every direction and contained 2.1 square miles. The whole area of the city was 12.33 square miles. The city market was a new building with all modern sanitary equipment and was located as nearly in the center of the city as it was possible for it to be. The rentals for spaces in the market were fixed by the board of aldermen at fair and reasonable rates, and efficient management was provided. The market was not operated by the city for revenue or profit but for the purpose of protecting the health and promoting the general welfare of the city, and, assuming the market operated at full capacity, there would still be a deficit to be met out of the general funds of the city. The plaintiffs were 21 market owners handling fresh meat and sea food in the area specified in the ordinance, and they asked that the defendants be permanently restrained from putting into effect the said ordinance. The lower court refused to grant a permanent restraining order and its judgment was affirmed by the Supreme Court. The following are extracts from the latter court's opinion:

"A market house has always been held in this state to be a necessary expense for a municipality. . . .

"Whatever we may think of the hardship involved, the ordinance is a valid exercise of police powers vested in the board of aldermen of Winston-Salem under the decisions of this court. . . .

"It was a hardship on plaintiffs, but the law in this state and the great weight of authorities in the nation, under the facts and circumstances of this case, are against the contention of plaintiffs. It is to be noted that the ordinance was passed on June 18, 1926, and went into effect December 1, 1926. The board of aldermen, realizing the hardship on plainiffs, gave them time to close out their businesses as dealers in fresh meat and sea food, so that, if they desired, they could rent places in the city market and sell fresh meat and sea food or rent places for their businesses outside the four-fifths of a mile area from the city market. We have taken time to consider thoroughly a so far-reaching and important matter affecting the rights of plaintiffs.

"From a careful review of the decisions of this state, the United States decisions, and those of other states, and from the facts and circumstances of this case, the forum of plaintiffs was with the governing body of Winston-Salem—the power was given them by legislative enactment."

Sexual Sterilization Law of Virginia Upheld

(United States Supreme Court; Buck v. Bell; decided May 2, 1927.) An act (chapter 394) of the Legislature of Virginia, approved March 20, 1924, provided for the sexual sterilization of inmates of certain state institutions who were afflicted with hereditary forms of insanity, idiocy, etc. The constitutionality of this law was attacked in a case where the sterilization of a feeble-minded woman had been ordered under it. The Virginia Supreme Court of Appeals upheld the act, and the case was carried to the United States Supreme Court, where the judgment of the state court was affirmed. [The opinion of the Supreme Court of the United States, written by Justice Holmes, is published in full in *Public Health Reports* for May 13, 1927.]

Another Crossing Accident Where the Locomotive Won

P & A Photos

THE DRIVER OF THIS AUTOMOBILE WAS SERIOUSLY INJURED WHEN HIS CAR WAS STRUCK BY A TRAIN AT A GRADE CROSSING IN SAN JOSE, CALIF.

The autoist drove directly in front of the train, disregarding the warning signal which was in operation

Water-Rate Schedules of Wisconsin Cities

Prepared from a Report by Lorna L. Lewis and Katharine Wesson for the Municipal Information Bureau, University Extension Division, of the University of Wisconsin

WE are accorded the privilege of publishing the wealth of information regarding the water-rate schedules in the different classes of Wisconsin cities through the courtesy of Ford H. MacGregor, Chief of the Municipal Information Bureau of the University of Wisconsin. This report is divided into three parts, giving the water rates for cities of over 10,000 population, for cities of from 5,000 to 10,000, and for a selected list of cities of less than 5,000 population respectively. The data for the report were secured from official reports filed in the Statistical Department of the Wisconsin Railroad Commission. So far as possible the meter rates and service charges have been given for each city. In addition to these meter rates, some of the cities have flat-rate schedules. These are so varied that it is impracticable to list all of them for all the cities given in this report. An attempt has been made, however, to give a sample of the flat-rate charges for each group of cities:

I. CITIES OVER 10,000 POPULATION

Appleton—Pop. 19,561—Municipal Plant

Quarterly Meter Rates—Gross Charge

First	500 cu. ft.	$.23 per 100 cu. ft.
Next	500 " "	.22 " " " "
"	3,000 " "	.20 " " " "
"	6,000 " "	.18 " " " "
"	40,000 " "	.16 " " " "
"	50,000 " "	.13 " " " "
"	50,000 " "	.11 " " " "
"	150,000 " "	.08 " " " "
"	200,000 " "	.06 " " " "
"	300,000 " "	.05 " " " "
"	1,000,000 " "	.03½ " " " "

Quarterly Service Charges

⅝-inch meter	$ 1.20
¾-inch "	1.80
1-inch "	2.70
1½-inch "	3.60
2-inch "	6.00
2½-inch "	7.50
3-inch "	9.00
4-inch "	13.50
6-inch "	16.50
8-inch "	25.50

Ashland—Pop. 11,334—Ashland Water Co.

Monthly Meter Rates

First 12,500 cu. ft.	$.21½ per 100 cu. ft.
Next 37,500 " "	.14½ " " " "
Over 50,000 " "	.12 " " " "

Annual Service Charges

½- or ⅝-inch meter	$14.40
¾-inch "	21.60
1-inch "	36.00
1½-inch "	50.40
2-inch "	81.60
3-inch "	144.00
4-inch "	259.20
6-inch "	432.00

Beloit—Pop. 21,284—Beloit Water, Gas and Electric Co. Company installs meters at own expense.

Output Charge per Quarter per Meter

First	10,000 cu. ft	$.17 net	$.18 gross per 100 cu. ft.
Next	15,000 " "	.12 "	.13 " " " "
"	25,000 " "	.09 "	.10 " " " "
"	50,000 " "	.08 "	.09 " " " "
"	100,000 " "	.06 "	.07 " " " "
Over	200,000 " "	.02 "	.03 " " " "

Meter Rates

	Quarterly Charge
⅝-inch meter, one consumer on meter	$1.25
¾-inch " " " "	1.50
1-inch " " " "	2.00
1½-inch " " " "	3.00
2-inch " " " "	4.00
3-inch " " " "	6.00
4-inch " " " "	12.00
6-inch " " " "	24.00
8-inch " " " "	37.50

For each additional consumer on each meter, $.75.

Eau Claire—Pop. 20,880—City of Eau Claire Water Utility Co.

Meters owned by utility.

Meter Rates

First 600 cu. ft. per quarter.	Minimum charge...$.75
Next 1,400 " " " "	Per 100 cu. ft. .12½
" 2,000 " " " "	" " " " .11
" 2,000 " " " "	" " " " .10
" 1,000 " " " "	" " " " .09
" 1,000 " " " "	" " " " .08
" 1,000 " " " "	" " " " .07
" 1,000 " " " "	" " " " .06
" 1,000 " " " "	" " " " .05
Over 11,000 " " " "	" " " " .04

All water used in excess of 1,500,000 cu. ft. per quarter, $.03 per 100 cu. ft.

Service Charge

⅝-inch meter	$ .25
¾-inch "	.40
1-inch "	.50
1½-inch "	1.00
2-inch "	1.50
3-inch "	2.50
4-inch "	5.00
6-inch "	10.00

Each additional consumer on meter pays service charge of $.25 per quarter and minimum charge of $.75 per quarter.

Fond du Lac—Pop. 23,427—City Water Department

Meter Rates

First 5,000 cu. ft. per quarter,	per 100 cu. ft.....$.25
Next 20,000 " " " "	" " " " .20
" 75,000 " " " "	" " " " .15
All over 100,000 " " " "	" " " " .07

Service Charge (Payable Quarterly in Advance)

⅝-inch meter, one consumer on meter per quarter	$ .75
¾-inch " " " " " "	.90
1-inch " " " " " "	1.00
1½-inch " " " " " "	1.50
2-inch " " " " " "	2.00
3-inch " " " " " "	3.00
4-inch " " " " " "	5.00
6-inch " " " " " "	10.00
8-inch " " " " " "	15.00

For each additional consumer on meter per quarter, $ .50

Flat Rates

Dwelling house, 5 rooms or less, one family with sewer or cesspool connection	$5.00 per year
Each additional room	1.00 " "
Same—without sewer or cesspool connection	4.00 " "
Each additional room	.75 " "

Green Bay—Pop. 31,017—Green Bay Water Co.

Quarterly Meter Rates

First 500 cu. ft.	$.24 per 100 cu. ft.
Next 1,500 " "	.22 " " " "
" 1,000 " "	.20 " " " "
" 7,000 " "	.18 " " " "
" 15,000 " "	.14 " " " "
" 25,000 " "	.12 " " " "
" 25,000 " "	.10 " " " "
" 25,000 " "	.08 " " " "
Over 100,000 " "	.05 " " " "

Quarterly Service Charges

⅝-inch meter	$1.25
¾-inch "	2.00
1-inch "	2.50
1½-inch "	4.00
2-inch "	7.50
3-inch "	12.00
4-inch "	15.00

For each additional consumer on one meter $.60 per quarter is charged.

Janesville—Pop. 18,293—Municipal Plant

Quarterly Meter Rates

First	1,000 cu. ft.	Minimum charge
Next	9,000 " "	$.15 per 100 cu. ft.
"	40,000 " "	.12 " " " "
"	50,000 " "	.10 " " " "
"	100,000 " "	.05 " " " "
"	700,000 " "	.03 " " " "
Over	900,000 " "	.02 " " " "

Quarterly Minimum Charges

½-inch meter	$1.75
¾-inch "	2.00
1-inch "	2.25
1½-inch "	3.00
2-inch "	4.00
3-inch "	8.00
4-inch "	12.00
6-inch "	18.75
8-inch "	25.00
10-inch "	37.50
12-inch "	50.00

Kenosha—Pop. 40,472—Kenosha City Water-Works

Meter Rates

First	5,000 cu. ft. per ½-yr.	$1.20 per 100,000 cu. ft.
Next	5,000 " " " "	1.00 " " " "
"	10,000 " " " "	.90 " " " "
"	30,000 " " " "	.80 " " " "
"	100,000 " " " "	.70 " " " "
"	150,000 " " " "	.60 " " " "
"	700,000 " " " "	.50 " " " "
Over	1,000,000 " " " "	.45 " " " "

Minimum rate per half year, $3.00.

La Crosse—Pop. 30,363—Municipal Plant

Meter Rates

First 2,000 cu. ft. or less in 6 mo. at rate of $.15 per 100 cu. ft.

Next 27,000 cu. ft. or less in 6 mo. at rate of $.10 per 100 cu. ft.

Next 100,000 cu. ft. or less in 6 mo. at rate of $.05 per 100 cu. ft.

Next 1,000,000 cu. ft. or less in 6 mo. at rate of $.04 per 100 cu. ft.

All over 1,129,000 cu. ft. or less in 6 mo. at rate of $.03 per 100 cu. ft.

Flat Rates

Minimum semi-annual charge, $2.50

House occupied by one family:

1 or 2 rooms	$3.00 per year
3 " 4 "	4.00 " "
5 " 6 "	5.00 " "
Each additional room	.50 " "

House occupied by more than one family to be charged at above rate for one family, and $4.00 for each additional family.

Madison—Pop. 38,378—Municipal Plant

Output Charges

First	75,000 cu. ft. used per 6 mo.	$.07½ per 100 cu. ft.
Next	425,000 " " " " " "	.06 " " " "
Over	500,000 " " " " " "	.04 " " " "

Meter Rates

½-inch meter one consumer on meter	$2.00
¾-inch " " " " "	2.50
1-inch " " " " "	3.00
1½-inch " " " " "	4.50
2-inch " " " " "	7.00
3-inch " " " " "	12.00
4-inch " " " " "	20.00
6-inch " " " " "	37.50

Each additional consumer on same meter, $1.00.

Flat Rates

Residences, stores, etc., with sewer connection	$4.00
Same without sewer connection	2.00
Barns, warehouses, etc., with sewer	4.00
Same without sewer connection	1.50

Manitowoc—Pop. 17,563—Municipal Plant

Meter Rates

First	2,500 cu. ft. per mo. per meter	$.22 per 100 cu. ft.
Next	2,500 " " " " " "	.20 " " " "
"	5,000 " " " " " "	.16 " " " "
"	5,000 " " " " " "	.12 " " " "
"	5,000 " " " " " "	.08 " " " "
"	5,000 " " " " " "	.06 " " " "
Over	25,000 " " " " " "	.04 " " " "

Monthly consumers subject to minimum charge of $.35 per mo. per meter.

Quarterly consumers subject to minimum charge $1.25 per meter.

Marinette—Pop. 13,610—City Water Co.

Output Charges

		Per Quarter	Per 100 Cu. Ft.
First	2,500 cu. ft. per mo. or	7,500 cu. ft.	$.40
Next	5,000 " " " " "	15,000 " "	.25
"	7,500 " " " " "	22,500 " "	.15
"	85,000 " " " " "	255,000 " "	.11
Over	100,000 " " " " "	300,000 " "	.07½

Metered Service Minimum Charges

½-⅝-inch meters per mo.,	$1.25 per quarter	$ 3.75
¾-inch " " "	2.00 " "	6.00
1-inch " " "	3.00 " "	9.00
1½-inch " " "	7.00 " "	21.00
2-inch " " "	13.00 " "	39.00
3-inch " " "	29.00 " "	87.00
4-inch " " "	51.00 " "	153.00
6-inch " " "	115.00 " "	345.00

Milwaukee—Pop. 457,147—Municipal Plant

Meter Rates

Water rates are made up of two items: first, a "service charge" against every meter to meet the cost of accounting, meter reading, delivery of bills, collection of accounts, etc.; second, a charge for water furnished to cover cost of pumping, purifying the water, distribution, maintenance of plant, etc.

a. Service charge

Uniform service charge of $2.00 per annum shall be assessed against every meter, regardless of the size of the meter, service pipe or amount of water consumed. This charge to be billed quarterly in amounts of $.50 a meter, and shall be payable in the same manner, and at the same time when water rates are due.

b. Charge of metered service

Charges for metered water for premises inside the city limits shall be uniform, to wit: $.07 per 100 cu. ft., equal to $.09⅓ per 1,000 gals.

For water furnished for any purpose beyond the city limits there shall be a uniform charge of $.10 per 100 cu. ft., equal to $.13⅓ per 1,000 gals.

Oshkosh—Pop. 33,162—City of Oshkosh Water Dept.

Commercial Service

Bills rendered quarterly on following rate:

First	3,000 cu. ft. per quarter	$.28 per 100 cu. ft. net
Next	7,000 " " " "	.14 " " " "
"	20,000 " " " "	.10 " " " "
"	70,000 " " " "	.08 " " " "
Over	100,000 " " " "	.06 " " " "

Minimum quarterly bills, $2.00.

Customer owns and maintains meter.

Racine—Pop. 58,593—Municipal Plant

Commercial Service

Meters rented to consumers.

Metered Rates

First	1,000 cu. ft. per quarter	$.20 per 100 cu. ft.
Next	14,000 " " " "	.18 " " " "
"	35,000 " " " "	.15 " " " "
"	50,000 " " " "	.11 " " " "
"	100,000 " " " "	.08 " " " "
"	200,000 " " " "	.06 " " " "
Over	400,000 " " " "	.05 " " " "

Meter Rates

Minimum Bills

½-inch meter	$1.50 per quarter	
¾-inch "	2.25 " "	
1-inch "	4.00 " "	
1½-inch "	9.00 " "	
2-inch "	16.00 " "	
3-inch "	36.00 " "	
4-inch "	64.00 " "	
6-inch "	144.00 " "	

Sheboygan—Pop. 30,955—Municipal Plant

Output Charge

First	200 cu. ft. per mo. per meter	minimum charge
Next	800 " " " " " "	$.17 net per 100 cu. ft.
"	1,000 " " " " " "	.14 " " " "
"	2,000 " " " " " "	.11¼ " " " "
"	6,000 " " " " " "	.085 " " " "
"	10,000 " " " " " "	.0675 " " " "
"	30,000 " " " " " "	.0525 " " " "
"	50,000 " " " " " "	.045 " " " "
Over	100,000 " " " " " "	.035 " " " "

Service Charge

½-⅝-inch meter	$0.40 per month
¾-inch "	.50 " "
1-inch "	.80 " "
1¼-inch "	.90 " "
1½-inch "	1.10 " "
2-inch "	1.60 " "
3-inch "	2.45 " "
4-inch "	4.20 " "
6-inch "	8.20 " "

Stevens Point—Pop. 11,370—Stevens Point Water Co.

Output Charge

First	2,000 cu. ft.	$.26 per 100 cu. ft.
Next	2,000 " "	.22½ " " " "
"	2,000 " "	.15 " " " "
"	4,000 " "	.10 " " " "
"	10,000 " "	.08 " " " "
"	80,000 " "	.06 " " " "
"	100,000 " "	.04½ " " " "

When over 200,000 cu. ft. is used in any one quarter, the rate of $.03¾ per 100 cu. ft. is to apply on the whole amount used.

Minimum $2.50 per quarter for one customer on a meter. Minimum $1.25 per quarter for each additional consumer on a meter.

Where water company owns meter:

SERVICE CHARGE

¾-inch meter	$.50 per quarter
¾-inch "	.75 " "
1-inch "	1.00 " "
1½-inch "	1.50 " "
2-inch "	2.00 " "

Superior—Pop. 39,624—Superior Water, Light & Power Co.

METER RATES

Monthly Consumption Through One Meter

	Gross	Discount
250 cu. ft. or less	$1.00	.25
300 " " " "	1.10	.25
350 " " " "	1.20	.25
400– 1,900 " " per 100 " "	.30	8%
2,000– 5,900 " " " " " "	.24	8%
6,000–11,900 " " " " " "	.21	8%
12,000–19,900 " " " " " "	.18	8%
20,000–39,900 " " " " " "	.15	8%
40,000–49,900 " " " " " "	.12	8%
50,000–99,900 " " " " " "	.0825	8%
100,000 & over " " " " " "	.06525	8%

FLAT RATES

Residences—domestic use—one family—4 rooms $4.80
Each additional room .80
(Rate covers use of water from tap in kitchen only.)
Residences—baths—without hot water connection $3.20 each
Residences—baths—with hot water connection, 4.00 "

Waukesha—Pop. 12,558—City of Waukesha Water Dept.

METER RATES

Minimum quarterly charge $2.00 for ¾-inch meter or under.

Consumers having meters larger than ¾-inch shall be assessed same minimum rate as industrial users.

First 15,000 gals.	$.35 per 1,000 cu. ft.
Next 10,000 "	.30 " " " "
" 25,000 "	.25 " " " "
" 300,000 "	.18 " " " "
Over 350,000 "	.12 " " " "

Wausau—Pop. 18,661—Wausau Water-Works

OUTPUT CHARGES

Payable Quarterly

Minimum quarterly charge in addition to service charge, $1.00. First 1,000 cu. ft. or fraction thereof, per quarter, $.20 per 100 cu. ft.

Next 3,000 cu. ft. or fraction thereof	$.15 per 100 cu. ft.
" 6,000 " " " " "	.10 " " " "
" 10,000 " " " " "	.08 " " " "
" 10,000 " " " " "	.07 " " " "
" 20,000 " " " " "	.06 " " " "
Over 50,000 " " " " "	.04 " " " "

SERVICE CHARGES

Payable Quarterly

¾-inch meter	$ .25
¾-inch "	.40
1-inch "	.50
1¼-inch "	.75
1½-inch "	1.00
2-inch "	1.50
3-inch "	2.50
4-inch "	5.00
6-inch "	10.00

FLAT RATES

Minimum annual charge, $5.00.

West Allis—Pop. 13,765—Municipal Plant

METER RATES

Minimum quarterly charge, $1.00.

Annual charge $1.00 for reading meters, payable quarterly.

Per 100 cu. ft., $.10.

II. CITIES 5,000 TO 10,000 POPULATION

Antigo—Pop. 8,451—Municipal Plant

METER RATES

	Per Quarter	Per Cu. Ft.
First 7,000 cu. ft. minimum charge	$.27¼ gross	$.26¼ net
Next 2,000 cu. ft.	.21¼ "	.20¼ "
" 2,600 " "	.16 "	.15 "
" 8,000 " "	.12¼ "	.11¼ "
" 16,600 " "	.08½ "	.07½ "
" 36,600 " "	.07 "	.06 "
" 600,000 " "	.06¼ "	.05¼ "
Over 666,500 " "		

SERVICE RATES

⅝-inch meter and ¾-inch meter, per quarter	$ 2.50
1-inch " " " " " "	3.00
1½-inch " " " " " "	4.50
2-inch " " " " " "	7.50
3-inch " " " " " "	10.50
4-inch " " " " " "	15.00
6-inch " " " " " "	18.75
8-inch " " " " " "	25.00

Discount: All metered water service billed at gross rate, and if paid within 10 days from date, the difference between gross and net rates shall be applied as discount.

FLAT RATES

10% of reduction from following rates was made after August 19, 1915.

In no case will water be turned on for less than $5.00 annual rate in dwelling houses. In business places no rate less than $12.00 per year.

Dwelling houses—1 family—4 rooms or less—faucet, per year	$5.00
Each additional room, per year	1.00
Water-closets, self-closing	5.00
Urinal, self-closing faucet	5.00
Lawns 50-ft. front or less—no nozzle larger than ½-inch	5.00
Heating boilers	1.00

Baraboo—Pop. 5,538—Municipal Plant

METER RATES

First 50,000 gals. for 3 mo. at	$.15 per 1,000 gals.
Next 100,000 " " " " "	.12 " " "
" 100,000 " " " " "	.10 " " "
" 150,000 " " " " "	.08 " " "
Over 400,000 " " " " "	.06 " " "

SERVICE CHARGES

¾-inch meter	$ .75
¾-inch "	1.00
1-inch "	1.50
1½-inch "	2.00
2-inch "	3.50
3-inch "	6.00
4-inch "	10.00
6-inch "	20.00

FLAT RATES

Residence—1 family—5 rooms or less, per year	$5.00
Each additional room, per year	1.00

Beaver Dam—Pop. 7,992—Beaver Dam Water Works Co.

OUTPUT CHARGES

First 1,000 cu. ft. per quarter	$.16 per 100 cu. ft.
Next 4,000 " " " "	.14 " " " "
" 20,000 " " " "	.10 " " " "
Over 25,000 " " " "	.08 " " " "

Minimum rate of $1.50 per quarter. In those cases where service charge exceeds $1.50, service charge shall constitute minimum.

METER RATES

Service Charge

¾-inch meter	$1.00 per quarter
¾-inch "	1.50 " "
1-inch "	2.00 " "
1¼-inch "	3.00 " "
2-inch "	5.00 " "
3-inch "	7.00 " "
4-inch "	12.50 " "
6-inch "	25.00 " "

Chippewa Falls—Pop. 9,130—Municipal Plant

METER RATES

Minimum charge for any consumer, $6.00 per year.

When daily consumption is:

100– 300 gals., per 1,000 gals.	$.36
300– 1,000 " " " "	.30
1,000– 4,000 " " " "	.24
4,000– 7,000 " " " "	.18
7,000– 9,000 " " " "	.14
9,000–12,000 " " " "	.12
12,000–18,000 " " " "	.096
18,000–30,000 " " " "	.084
30,000 or over " " " "	.072

FLAT RATES

Minimum, $6.00 per year.

Dwellings occupied by 1 family, kitchen faucet, $6.00.

Cudahy—Pop. 6,725—Municipal Plant

METERED RATES

First 100,000 cu. ft. per mo.	$.08 per 100 cu. ft.
Next 100,000 " " " "	.07 " " " "
" 800,000 " " " "	.06 " " " "
" 1,000,000 " " " "	.05 " " " "
" 1,000,000 " " " "	.04 " " " "
Over 3,000,000 " " " "	.03 " " " "

Service charge—$.25 per quarter.

Minimum charge—$.60 per quarter, in addition to service charge.

FLAT RATES

Flooding skating pond per season	$200.00
Public parks—toilets— per season	75.00
" " —bubblers " "	10.00
" " —pavillions " "	5.00
Sprinkling in public park for trees, etc., per season	100.00
" parkway per season	20.00

Public meter house per year..... 50.00
" fire hydrants, per year..... 10.00

De Pere—Pop. 5,165—Municipal Plant

METER RATES

First 3,000 gals. or less per quarter—minimum charge for each size meter.
Next 7,000 gals. per quarter.....$.40 per 1,000 gals.
" 10,000 " " " ..... .30 " " "
" 20,000 " " " ..... .17 " " "
Over 40,000 " " " ..... .10 " " "

Minimum charge—one customer on meter.

SERVICE CHARGES

¾-inch meter or smaller.....$1.75 per quarter
1-inch " " " ..... 2.00 " "
1¼-inch " " " ..... 2.25 " "
1½-inch " " " ..... 2.75 " "
2-inch " " " ..... 3.25 " "
3-inch " " " ..... 4.00 " "
4-inch " " " ..... 5.00 " "
6-inch " " " ..... 7.00 " "

Each additional customer on meter $.50 per quarter.
Unmetered service.
Each faucet.....$1.75 per quarter
" bath..... .55 " "
" toilet..... .85 " "

Kaukauna—Pop. 5,951—City of Kaukauna Water Dept.

OUTPUT CHARGES

First 1,300 cu. ft. per quarter.....$.22½ per 100 cu. ft.
Next 2,660 " " " " ..... .20 " " " "
" 6,650 " " " " ..... .15 " " " "
" 39,900 " " " " ..... .12½ " " " "
" 39,900 " " " " ..... .10½ " " " "
Over 90,440 " " " " ..... .07 " " " "

SERVICE CHARGES

¾-inch meter.....$1.25 per quarter
1-inch " ..... 2.50 " "
1¼-inch " ..... 5.00 " "
1½-inch " ..... 7.50 " "
2-inch " .....10.00 " "
3-inch " .....15.00 " "

Marshfield—Pop. 7,394—Municipal Plant

Minimum quarterly charge, $2.50.

METER RATES

First 13,942 gals. used per quarter.....$.35 per 1,000 gals.
Next 13,058 " " " " ..... .30 " " " "
" 63,000 " " " " ..... .25 " " " "
" 135,000 " " " " ..... .20 " " " "
Over 225,000 " " " " ..... .15 " " " "

Menasha—Pop. 7,214—Municipal Plant

Minimum annual charge, $5.00.

QUARTERLY CHARGE

50– 150 gals. per day at rate of $.15 per 1,000 gals.
150– 500 " " " " " " .10 " " " "
500– 3,000 " " " " " " .08 " " " "
3,000– 6,000 " " " " " " .06 " " " "
6,000– 10,000 " " " " " " .04 " " " "
10,000– 50,000 " " " " " " .03½ " " " "
50,000–150,000 " " " " " " .03 " " " "
Over 150,000 " " " " " " .02½ " " " "

Menomonie—Pop. 5,104—Municipal Plant

METER RATES

Minimum charge for metered water service demand 1,200 cu. ft. for 90 days—$2.70 for 90 days when daily consumption is:
100– 300 gals. per 1,000 gals.....$.30
300– 1,000 " " " " ..... .25
1,000– 6,000 " " " " ..... .20
6,000–14,000 " " " " ..... .15
14,000–20,000 " " " " ..... .13
20,000–30,000 " " " " ..... .08
Above 30,000 " " " " ..... .05

FLAT RATES

Residences:
1 family—4 rooms or less.....$5.00 per year
5 rooms..... 6.00 " "
Each additional room..... 1.00 " "
Baths, private, without heating attachment.. 3.00 " "
" " with " " .. 4.00 " "
" hotel, etc., first tub..... 8.00 " "
" " " each additional tub..... 4.00 " "

Merrill—Pop. 8,068—City Water-Works of Merrill

METERED RATES

First 25,000 gals or less in 1 mo., $.49 per 1,000 gals., or 75,000 gals. per quarter.
Next 25,000 gals. or less in 1 mo., $.24 per 1,000 gals., or 75,000 gals. per quarter.
Over 50,000 gals. or less in 1 mo., $.12 per 1,000 gals., or 150,000 gals. per quarter.

MINIMUM BILLS

½-inch or ⅝-inch meter, $1.00 a mo.....$3.00 a quarter
¾-inch " 2.00 " " ..... 6.00 " "
1-inch " 4.00 " " .....12.00 " "
Each add. ½-inch size, 2.00 " " ..... 6.00 " "

FLAT RATES

Minimum annual bill.....$12.00 per year
Residence—1 family—4 rooms or less..... 12.00 " "
Each additional room..... .50 " "

Neenah—Pop. 7,171—Municipal Plant

OUTPUT CHARGES

First 9,000 gals. per quarter.....$.30 per 1,000 gals.
Next 36,000 " " " ..... .24 " " "
Over 45,000 " " " ..... .16 " " "

SERVICE CHARGES

⅝-inch meter per quarter.....$ .75
¾-inch " " " 1.00
1-inch " " " 1.50
1½-inch " " " 2.50
2-inch " " " 5.00
4-inch " " " 10.00

Meters may be installed at their own expense by consumers not satisfied with flat rates. Company also reserves right to install meters on any service pipe.

Oconto—Pop. 4,920—Oconto City Water Supply Co.

OUTPUT CHARGES

	Per Quarter	Per 100 Cu. Ft.
First 1,500 cu. ft. used	$.25 gross	$.23 net
Next 2,000 " " "	.20 "	.18 "
" 11,500 " " "	.17 "	.15 "
Over 15,000 " " "	.12 "	.10 "

Each additional customer or unit of service on same, $.50 per quarter.

SERVICE CHARGE

Payable quarterly—one customer on a meter.

	Gross	Net
⅝-inch meter	$2.00	$1.75
¾-inch "	2.75 "	2.50 "
1-inch "	3.25 "	3.00 "
1½-inch "	4.00 "	3.75 "
2-inch "	5.00 "	4.50 "
3-inch "	8.00 "	7.50 "
4-inch "	11.00 "	10.00 "
6-inch "	26.00 "	25.00 "

UNMETERED SERVICE

Pending installation of meters

	Per Quarter Gross	Net
Residences—1 family:		
1 or 2 faucets	$2.50	$2.25
Each additional	1.35 "	1.25 "
Hose ½-inch nozzle—2 hrs. per day	2.10 "	2.00 "
Baths, each	1.35 "	1.25 "
Wash-basins, each	.80 "	.75 "
Water-closets	1.35 "	1.25 "
Each room above 5	.30 "	.25 "
Steam heaters	1.10 "	1.00 "

Each additional family or unit of service on a premise to be billed for above charges.
Business places, meter rates.
Construction purposes—special permits—no license less than $1.00.

Portage—Pop. 5,582—Municipal Plant

METER RATES

Minimum annual charge, $5.00.
Less than 300 gals. per day.....$.05 per 100 gals.
300– 400 " " " ..... .04 " " "
400–1,000 " " " ..... .03½ " " "
1,000–5,000 " " " ..... .02½ " " "
5,00 & upward " " " ..... .02 " " "

FLAT RATES

Minimum, $5.00

Rhinelander—Pop. 6,654—Municipal Plant

METER RATES

Minimum Quarterly Bills

OUTPUT CHARGES

First 750 cu. ft. per quarter.....Minimum bill
Next 4,250 " " " ..... $.11 per 100 cu. ft.
" 20,000 " " " ..... .08 " " " "
" 25,000 " " " ..... .06 " " " "
" 100,000 " " " ..... .04 " " " "
Over 150,000 " " " ..... .03½ " " " "

SERVICE CHARGES

⅝-inch meter.....$1.25
¾-inch " 1.50
1-inch " 2.00
1½-inch " 2.50
2-inch " 4.00
4-inch " 9.00
6-inch " 16.00

Each additional consumer on meter, $.75.
Each apartment, flat, suite, store, office, etc., is considered a separate consumer for determining the bill.

	Flat Rates Residences and Churches		Boarding & Rooming Houses & Restaurants	Stores & Offices	Barber Shops	Hotels, Saloons & Office Buildings
	1 Family	Each Add. Fam.				
1 faucet or yard hydrant	$5.00	$3.00	$5.00	$5.00	$5.00	$7.00
Sink or wash-basin (1 or 2 faucets)	5.00	4.00	7.00	5.00	5.00	8.00
Each add. sink or wash-basin	.75	...	1.00	.75	2.00	2.00
Water-closet	1.25	1.00	2.00	1.25	1.50	5.00
Each add. closet	.75	...	1.50	.75	1.00	4.00
Bath	1.25	1.00	2.00	1.25	5.00	5.00
Each add. bath	1.00	...	1.50	1.00	4.00	4.00
Urinal	1.00	...	1.00	1.00	...	5.00

South Milwaukee—Pop. 7,598—Municipal Plant

Meter Rates

Minimum quarterly charge, $1.50.

First	25,000 gals. per quarter	$.25 per 1,000 gals.
Next	25,000 " " "	.20 " " "
"	25,000 " " "	.16 " " "
"	25,000 " " "	.12 " " "
Over	100,000 " " "	.10 " " "

Stoughton—Pop. 5,101—Municipal Plant

Meter Rate

First	5,000 gals. consumed per quarter	$1.75 min. charge
Next	5,000 " " "	.35 per 1,000 gals.
"	50,000 " " "	.30 " " "
"	50,000 " " "	.20 " " "
"	75,000 " " "	.15 " " "
"	165,000 " " "	.10 " " "
Over	350,000 " " "	.07 " " "

Flat-rate consumers to be charged minimum bill.

Two Rivers—Pop. 7,305—Municipal Plant

General Service

First	5,000 cu. ft. used per quarter	$.14 per 100 cu. ft.
Next	5,000 " " "	.12 " " "
"	5,000 " " "	.10 " " "
"	5,000 " " "	.08 " " "
"	5,000 " " "	.06 " " "
Over	25,000 " " "	.05 " " "

Minimum charge per quarter—1 customer on a meter, $1.00.

Each additional customer or unit of service on same meter $.50 per quarter.

Watertown—Pop. 9,299—City Water-Works Dept.

Output Charges

First	750 cu. ft. per quarter	Minimum bill
750–5,000	" " "	$.16 per 100 cu. ft.
5,000–25,000	" " "	.12 " " "
25,000–50,000	" " "	.09 " " "

Excess $.04½ per 100 cu. ft.

Meter Rates

Minimum Quarterly Bill

Service Charge

⅝-inch meter	$1.25
¾-inch "	1.50
1-inch "	2.00
1½-inch "	2.50
2-inch "	4.00
4-inch "	9.00
6-inch "	16.00

Wauwatosa—Pop. 5,818—Municipal Plant

Meter Rates

Minimum semi-annual charge, $1.75. Per 100 cu. ft., $.08.

Flat Rates

Dwelling houses—1 family—5 rooms or less (per annum)	$5.00
Each additional room	.50

Houses occupied by more than 1 family to be charged at above rate for 1 family, and $2.00 for each additional.

Bathtubs:	
Private—each (per annum)	$3.00
Public " " "	5.00–15.00
Wash-basins:	
Private—each	1.00
Public "	3.00
Water-closets:	
Private (1 with self-closing valves)	2.00
Each additional	1.50
Urinals:	
Private, 1 self-closing	2.00–3.00
Each additional	1.50
Public, 1 self-closing	6.00
Each additional	4.00

Wisconsin Rapids—Pop. 7,243—Municipal Plant

Meter Rates

First	2,000 cu. ft. per quarter	$.26 net per 100 cu. ft.
Next	2,000 " " "	.22½ " " " "
"	2,000 " " "	.15 " " " "
"	4,000 " " "	.12 " " " "
"	60,000 " " "	.09 " " " "
"	80,000 " " "	.07 " " " "
"	100,000 " " "	.05 " " " "
"	250,000 " " "	.04 " " " "

Service Charges

Minimum Charge

⅝-inch meter per quarter	$2.50
¾-inch " " "	2.75
1-inch " " "	3.00
1½-inch " " "	4.00
2-inch " " "	5.00
3-inch " " "	7.00
4-inch " " "	10.00
6-inch " " "	20.00

Flat Rates

$6.00 per year for each faucet.

III. CITIES UNDER 5,000 POPULATION

Alma—Pop. 970—Municipal Plant

Meters owned by consumer.

Rates—$.30 per $1,000 gals.

Minimum charge $5.00 per year, payable semi-annually

Penalty, water shut off if bill is not paid within 30 days, $.50 charge for re-connection.

Amery—Pop. 1,203—Municipal Plant

Meters owned by utility.

Rates

First	500 cu. ft. per quarter	Minimum bill
Next	1,500 " " "	$.20 per 100 cu. ft.
"	3,000 " " "	.15 " " " "
"	10,000 " " "	.10 " " " "
Over	15,000 " " "	.07 " " " "

Minimum quarterly bill.

⅝-inch meter	$1.25
¾-inch "	1.50
1-inch "	2.00
1½-inch "	2.50
2-inch "	4.00
4-inch "	9.00

Flat rates $4.00 per faucet per year.

Augusta—Pop. 1,407—Municipal Plant

Meters owned by utility.

First	25,000 gals. per 6 mo.	$.30 per 1,000 gals.
Next	25,000 " " "	.22 " " "
"	50,000 " " "	.18 " " "
"	150,000 " " "	.15 " " "
"	270,000 " " "	.11 " " "
Over	520,000 " " "	.07 " " "

Minimum charge $5.00 per year.

Service charge payable semi-annually. For each additional consumer on same meter, $.50 per year.

Bayfield—Pop. 1,441—Private Plant

Service Charge

One customer on meter.

a. Each flat-rate customer, $.75 per mo.

b. Each metered customer:

½–⅝-inch meter	$ .50 per mo.
¾-inch "	1.00 " "
1-inch "	1.50 " "
1½-inch "	2.00 " "
2-inch "	3.00 " "
3-inch "	6.00 " "
4-inch "	10.00 " "
6-inch "	15.00 " "

Output Charges

		Per 1,000 Gals.
First	2,000 cu. ft. used per mo.	$.50 gross $.40 net
Next	3,000 " " "	.45 " .35 "
"	5,000 " " "	.40 " .30 "
"	10,000 " " "	.25 "
"	10,000 " " "	.20 "
"	10,000 " " "	.15 "
Over	40,000 " " "	.10 "

Minimum output charge, $.75 per mo.

Output Charges for Flat-Rate Customers

$1.00 per mo. 1 faucet	$1.00 per mo.
1 bathtub	.30 " "
1 water-closet	.40 " "
Private barn	.50 " "
" garage	.50 " "
Hotel	3.00 " "
Livery and feed stable	3.00 " "
Public garage	3.00 " "
Lawn and garden hose	5.00 "season

Cedarburg—Pop. 1,738—City Water Department

First	5,000 gals.	$.35 per 1,000 gals.
Next	5,000 "	.30 " " "
"	10,000 "	.25 " " "
"	20,000 "	.20 " " "
Over	40,000 "	.15 " " "

Quarterly Service Charge

⅝-inch meter	$. 75
¾-inch "	.90

1-inch	"	1.00
1½-inch	"	1.50
2-inch	"	2.00
3-inch	"	3.00
4-inch	"	5.00
6-inch	"	10.00

Chetek—Pop. 1,154—Municipal Plant

Meters owned by utility.

Rates—$2.00 for one consumer on one meter for first 5,000 gals. or fraction thereof; and $.25 per 1,000 gals. or fraction thereof over and above the first 5,000 gals. consumed. For each additional consumer on the same meter, a charge of $1.00 shall be made in addition to the charge first provided.

Penalty for failure to pay by 15th—water shut off and $1.00 charged for reconnection. Consumers pay for service pipes from main to curb.

Elkhorn—Pop. 1,991—Municipal Plant

Meter Rates

$6.00 per year or $1.50 per quarter—minimum rate.

First	335 cu. ft. per quarter	$.30	per 100 cu. ft.
Next	335 " " " "	.22½	" " " "
"	335 " " " "	.15	" " " "
All in excess 1,005	" " " "	.11	" " " "

When meter is owned by company, maintenance charge of $.75 per quarter is made.

Evansville—Pop. 2,209—Municipal Plant

Quarterly Meter Rates

		Per 100 Cu. Ft.	
First	500 cu. ft.	$.20 gross	$.18 net
Next	1,500 " "	.17 "	.15 "
"	5,000 " "	.14 "	.12 "
Over	7,000 " "	.10 "	.08 "

Quarterly Service Charge

½ or ⅝-inch meter	$1.00 gross	$ .75 net
¾-inch "	1.25 "	1.00 "
1-inch "	1.75 "	1.50 "
1½-inch "	3.00 "	2.50 "
2-inch "	5.00 "	4.00 "
3-inch "	7.50 "	6.00 "
4-inch "	12.00 "	10.00 "

For each additional consumer on same meter, the service charges shall be increased $.50 per consumer. The difference between gross and net rates shall constitute a discount for prompt payment.

Juneau—Pop. 1,159—Municipal Plant

Meters owned by consumer.

Rates

First	3,000 gals.	$.60	per 1,000 gals.
Next	2,000 "	.55	" " "
"	5,000 "	.50	" " "
"	5,000 "	.45	" " "
"	5,000 "	.40	" " "
"	10,000 "	.30	" " "
"	10,000 "	.25	" " "
"	60,000 "	.20	" " "
"	1,000,000 "	.15	" " "
"	1,000,000 "	.12	" " "
Over	2,100,000 "	.10	" " "

Minimum semi-annual bill, $2.00.

Ladysmith—Pop. 3,581—Municipal Plant

Meter Rates

First	25,000 gals. per quarter	$.35	per 1,000 gals.
Next	25,000 " " "	.30	" " "
"	25,000 " " "	.20	" " "
"	50,000 " " "	.10	" " "
Over	125,000 " " "	.08	" " "

Minimum charge per quarter, $1.75.

Meters furnished by utility.

Lake Geneva—Pop. 2,632—Municipal Plant

Minimum daily charge $2.50, when daily consumption is:

100– 300 gals.	$.35	per 1,000 gals.
300– 1,000 "	.30	" " "
1,000– 6,000 "	.25	" " "
6,000–14,000 "	.20	" " "
14,000–30,000 "	.15	" " "
Above 30,000 "	.13	" " "

When annual consumption is:

500,000–1,000,000 gals	$.20	per 1,000 gals.
1,000,000–3,000,000 "	.15	" " "
Above 3,000,000 "	.12	" " "

Monthly consumption of 900,000, $.10 per 1,000 gals.

Mineral Points—Pop. 2,569—Municipal Plant

Minimum charge per quarter, $1.25.

First	10,000 gals. used per quarter	$.50	per 1,000 gals.
Next	10,000 " " "	.45	" " "
"	10,000 " " "	.40	" " "
"	10,000 " " "	.35	" " "
"	10,000 " " "	.30	" " "
"	10,000 " " "	.25	" " "
Over	60,000 " " "	.20	" " "

New Lisbon—Pop. 994—Municipal Plant

Rates

First	50,000 gals.	$.20	per 1,000 gals
Next	50,000 "	.15	" " "
"	50,000 "	.10	" " "
Over	150,000 "	.08	" " "

Minimum annual charge $5.00, payable semi-annually, in advance.

Penalty 10% if bill not paid within 10 days; if not paid by the 30th, water shut off.

Oconomowoc—Pop. 3,301—Municipal Plant

Minimum annual charge $5.00 per consumer.

First	300,000 gals. used 6 mos.	$.15	per 1,000 gals.
Next	500,000 "	.12	" " "
"	800,000 "	.10	" " "
"	1,500,000 "	.08	" " "
Over	3,100,000 "	.06	" " "

Onalaska—Pop. 1,066—Municipal Plant

Meters owned by municipality.

Rates

First	2,000 cu. ft.	$.23	per 100 cu. ft.
2,000–	20,000 "	.12	" " "
20,000–	50,000 "	.08	" " "
50,000–250,000	"	.06	" " "
Over	322,000 "	.04½	" " "

Minimum charge $3.75, payable semi-annually in advance. Penalty, 5% if not paid within 21 days; if not paid by the 26th, water shut off, and $1.00 charge for reconnection.

Prairie du Chien—Pop. 3,537—Municipal Plant

Output Charges

First 700 cu. ft. per quarter for all sizes of meters shall be allowed to be consumed under minimum charge.

		Per 100 Cu. Ft.	
Next	2,300 cu. ft. per quarter	$.18 gross	$.17 net
"	4,000 " " "	.14 "	.13 "
"	8,000 " " "	.07 "	.06 "
Over	15,000 " " "	.06 "	.05 "

Service Charges

⅝-inch meter per quarter	$1.65 gross	$1.50 net
¾-inch " " "	2.15 "	2.00 "
1-inch " " "	2.65 "	2.50 "
1½-inch " " "	3.15 "	3.00 "
2-inch " " "	4.20 "	4.00 "
3-inch " " "	6.50 "	6.25 "
4-inch " " "	10.50 "	10.00 "
6-inch " " "	15.50 "	15.00 "
Each additional consumer on same	1.50 "	1.00 "

Ripon—Pop. 3,929—Wisconsin Power and Light Co.

Daily Meter Rates

First	500 gals.	$.25	per 1,000 gals.
Next	500 "	.20	" " "
"	4,000 "	.15	" " "
"	20,000 "	.10	" " "
Over	25,000 "	.08	" " "

Annual Minimum Charges

½ or ⅝-inch meter	$7.00
¾-inch "	8.00
1-inch "	9.00
1½-inch "	10.00
2-inch "	12.00
2½-inch "	24.00
3-inch "	36.00
3½-inch "	48.00
4-inch "	60.00

Shawano—Pop. 3,544—Municipal Plant

Quarterly Meter Rates

First	3,600 cu. ft.	$.22	per 100 cu. ft.
Next	3,600 " "	.20	" " "
"	12,600 " "	.15	" " "
Over	19,800 " "	.10	" " "

Sparta—Pop. 4,466—Municipal Plant

Output Charges

First	1,500 cu. ft. used for ½ year	Minimum charge	
Next	8,500 " " " "	.10	per 100 cu. ft.
"	40,000 " " " "	.08	" " "
Over	50,000 " " " "	.07	" " "

Each additional consumer on meter $1.00.

Minimum Semi-Annual Service Charge

⅝-inch meter	$2.75
¾-inch "	3.50
1-inch "	4.00
1½-inch "	5.00
2-inch "	7.00
3-inch "	9.00
4-inch "	12.00

Sturgeon Bay—Pop. 4,553—Utilities Commission

Minimum monthly bill $.50.

First	5,000 gals.	$.30	per 1,000 gals
Next	5,000 "	.25	" " "
"	10,000 "	.20	" " "
"	15,000 "	.15	" " "
Over	35,000 "	.10	" " "

FLAT RATES
Minimum charge per consumer, $8.00.

Waupaca—Pop. 2,839—Municipal Plant
METER RATES
Minimum semi-annual charge $2.50.
First 10,000 gals. consumer, $2.50 for 10,000 gals.
Next 10,000 gals. or fraction at $.25 per 1,000; $5.00 for 20,000 gals.
Next 50,000 gals. or fraction at $.20 per 1,000; $15.000 for 70,000 gals.
Next 50,000 gals. or fraction at $.15 per 1,000; $22.50 for 120,000 gals.
Next 50,000 gals. or fraction at $.10 per 1,000; $27.50 for 170,000 gals.
Next 50,000 gals. or fraction at $.09 per 1,000; $32.00 for 220,000 gals.
Next 50,000 gals. or fraction at $.08 per 1,000; $36.00 for 270,000 gals.
Next 50,000 gals. or fraction at $.07 per 1,000; $39.50 for 320,000 gals.
All water consumed in each six months' period over 320,000 gals. to be charged for at the rate of $.07 per 1,000 gals.

Better County Government for North Carolina

An Editorial from the *National Municipal Review*

BY a series of three laws passed at the recent session of the Legislature, North Carolina places herself in the van of the states which are doing something about county government. It is now possible for counties in that state to choose between two forms of government—the regular form now existing and the county manager plan. It is possible for the county commissioners themselves to install the latter plan on their own motion, but if the county board does not exercise its discretion to appoint a manager the electors may by petition bring the matter to a vote. If the majority of votes cast at the election are in favor of the manager plan, the board must proceed to appoint a manager.

The manager is empowered to appoint, with the approval of the commissioners, such subordinate officers as the board may consider necessary, except such officers as are required to be elected by the people or whose appointment is otherwise provided by law. But inasmuch as the act does not disturb existing elective or appointive offices, the appointive power of the manager will have a narrow range inconsistent with his position as "the administrative head of the county government" and his responsibility "to see that all orders, resolutions and regulations of the board of commissioners are faithfully executed."

A novel feature is the creation of a county government advisory commission, the secretary of which is to act as county adviser. In this capacity he will visit the counties of the state to advise and assist the county officers in providing competent and economical administration. The development of this office will be watched with interest in other states.

A second bill relates to county fiscal control. The county auditor becomes the county accountant, and as such, the chief accounting, auditing and budget officer of the county. The budget estimates of all department heads and officers in charge of spending money are filed with him and he thereupon prepares his own estimates of necessary appropriations for the ensuing fiscal year. The county board then determines the appropriations for the next year, but no appropriation recommended by the county accountant for debt services shall be reduced, nor can the county commissioners make any appropriation which will infringe upon the powers of the county board of education. It is also compulsory upon the commissioners to appropriate the full amount of all deficits reported in the estimates which have not been funded as provided by law.

The third act relates to the issuance of county bonds and notes. It specifies the purposes for which bonds can be issued and limits the term of the bonds to the estimated life of the improvement as set forth in the act. All bonds are to be serial in form and no annual installment shall be more than two and one-half times as great in amount as the smallest prior installment.

The new county bond law is more comprehensive than any which has come to our attention, and applies to counties the sound principles which should govern borrowings and which have been adopted for municipalities in a few states, notably North Carolina and New Jersey.

BILL QUITS

An Explanation of the Rural Exodus

By Bob Adams

We view the farmer with alarm
Because he won't stay on the farm.
He moves to town and there he lives,
While here and yon his flivver flivs,
And city papers wonder why
He thus neglects our food supply.
How can he tear himself away
From smells of flowers and new-mown hay?
I tracked one rustic to his flat
And begged of him, by this and that,
To answer if he felt no shame,
In spite of youth and stalwart frame
To quit thus cold the farming game.
"Nay, nay," quoth he, "by ding and dang;
I suffer not a single pang.
The crops I sold went cheap as dirt,
I needed cash for baby's shirt,
And for my wife's—that is to say—
Though South Sea belles wear suits of hay,
My woman hates to dress that way."
"But Bill," says I, "all men are brothers,
You farmers ought to feed the others."
"The world can feed itself," he said,
And threw me out upon my head.
Too husky he for me to fight,
And anyway the cuss was right.
Long laboring hours and meagre gain
This rural exodus explain.

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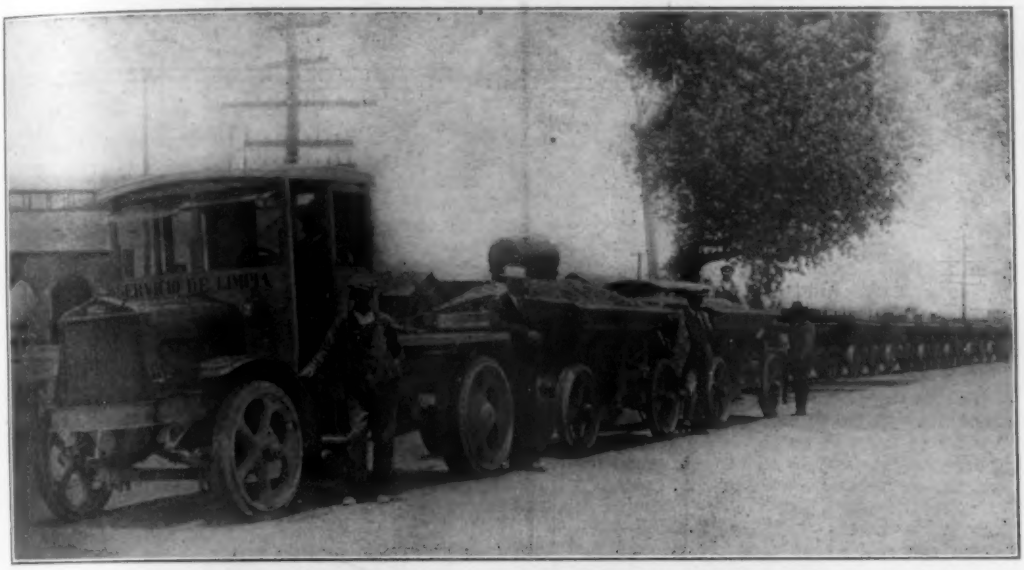
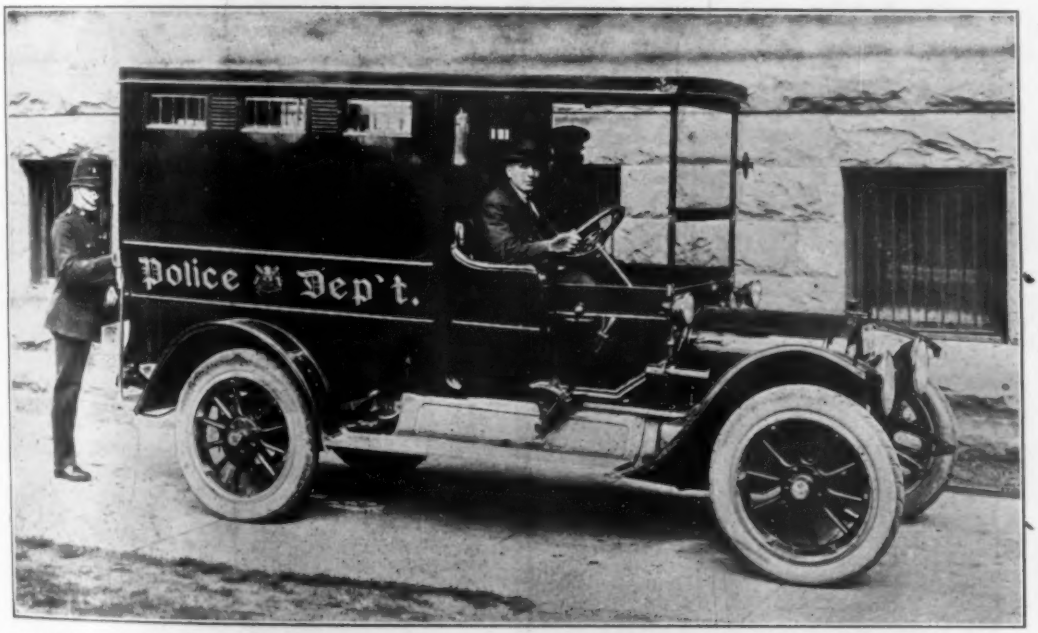
Motorized Municipal Services in Mexico and Canada



TWO TRAINS OF HIGHWAY TRAILERS HAULED BY WHITE TRUCKS OPERATED BY THE REFUSE COLLECTION DEPARTMENT OF MEXICO CITY, MEXICO



FAMOUS 16-YEAR-OLD BLACK MARIA OWNED BY THE POLICE DEPARTMENT OF CALGARY, ALBERTA

After being through the 1914 oil boom, the greatest war in the history of the world, the 1926 oil boom, and the auction bridge period, Black Maria, the 16-year-old patrol wagon made by the White Co. for the Police Department of Calgary, Alberta, is to spend the rest of its days in peace. Chief Ritchie recommended that it be replaced by a modern combination patrol wagon ambulance. Acccording to reports, "She has traveled more miles than any truck now in service in Calgary and although she wheezes a little now on the upgrade and isn't as spry as she used to be, still police garage drivers cannot cite a single instance where they had to walk back once they started. She's not that kind of a patrol wagon"

Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives and Others

Road-Widening Procedure for Super-Highways in the Milwaukee Region

MILWAUKEE, WIS.—Painted signs along all the principal county highways, with legends like that shown in the accompanying photograph, testify to the preparations which Milwaukee County is making for the super-highways of the future.

It was recognized that, as the city of Milwaukee and its suburbs grew, the county highways would become more and more congested unless the highways now 66 or less feet wide were increased to a width which would take care of the future traffic. Widths of from 90 to 160 feet were decided upon for the important state and county trunk lines outside the limits of incorporated cities and villages. Other roads which are heavily traveled are also included in the list of highways to be widened.

The cooperation of property owners and subdividers with the County Highway Commissioner has made the highway-widening program possible. Where wider rights of way have been procured, the property has been dedicated by the owners rather than purchased. They have appreciated the fact that better and wider highways increase the value of property and that it is expensive and unsatisfactory to widen streets to take care of heavy traffic after buildings have been erected.

MILWAUKEE COUNTY'S PREPARATIONS FOR FUTURE SUPER-HIGHWAYS

In Milwaukee County this work of planning for wider highways is done by the Regional Planning Department, of which E. A. Howard is Supervising Engineer. This department is under the supervision of W. F. Cavanaugh, Highway Commissioner and Planning Engineer. One of the chief duties of the department is to advise realtors platting subdivisions and to suggest to them how to lay out the streets, etc.

When the plan to widen the principal highway arteries in the county was first suggested, it was found that the subdividers were willing to set new buildings back and to dedicate the land necessary to widen the highway, if they could be assured that others would do likewise. Accordingly, in 1925 a bill was drafted and passed the Legislature authorizing the County Board to establish the widths of highways in excess of the widths then in use, if the Town Boards approved the plan.

The Milwaukee County Board passed an ordinance in June, 1926, specifying the widths of highways. All seven Town Boards in the county ratified it. After this approval, a certified copy of the ordinance with maps was filed in the office of the Register of Deeds, as required by law. The highway-widening provisions, therefore, are in every abstract of land sold which abuts the highways to be widened.

The highway-widening ordinance does not constitute a taking of land or interference with private rights. It is a declaration of intention as to the proposed future width of the highway. The only time property is affected is when the owner wishes to subdivide or build.

When subdividing, street widths must be provided as specified in the ordinance or the plat cannot be recorded. When buildings are erected, the owners are advised to keep the structures back of the established line.

The ordinance relating to highway widening is a popular one. Exact figures are not available at this time, but it was stated at the office of the Highway Commissioner that from 30 to 40 miles of highway have already been dedicated to the county for highway widening. Other counties of the state are asking that the law be amended so that they, too, can plan now to widen their highways in the future.

While the signs are posted now, the actual widening of the road surface will be done only when traffic makes it necessary. A right-of-way of 90 feet will provide room for two street-car zones of 10 feet each, and two traffic lanes in each direction, of 10 feet each, leaving 15 feet on either side for sidewalks and planting. Highways 110 feet wide will have two additional lanes of 10 feet each, making three lines of traffic in each direction, in addition to the two street-car zones of 10 feet each. Highways 120 feet wide may have the same number of lanes of traffic as those 110 feet wide, but

the additional 10 feet will permit more latitude in the use of dividing-strips of safety islands, so that the traffic can be segregated into lanes traveling in either direction, reducing the danger of headlight glare in night driving.

The plan which will be followed in the building of each highway will be determined by the traffic requirements of that particular road.

P. W. KOEPPEN.

Grade-Crossing Danger Signals in Delaware

STATE OF DELAWARE.—A number of danger signals of the "island" type, which are proving very satisfactory, have been installed at railway crossings in Delaware. The signal is in the form of a black-and-white cross-hatch fence, built directly across the traffic lane on either side of the railway grade crossing. The concrete is carried around this block, so that cars approaching must slow up at the block, and turn rather sharply to the right, in order to proceed. This calls the attention of the driver to the fact that a railroad crossing is ahead, and has the further advantage of requiring him to turn first in one direction, and then back in the other, thus giving him an opportunity to look up and down the track, and to assure himself that it is clear. The usual cross-board signal, "Railroad Crossing—Look Out for the Locomotive," is used in connection with this block.

A modified form of island signal is also being used, which consists of a heavy concrete block with warning lights and the railroad warning sign.

C. D. BUCK,
Chief Engineer,
Delaware State Highway Department.

ISLAND SIGNAL AT A DELAWARE GRADE CROSSING

A CLOSE-UP OF THE ISLAND SIGNAL

Kalamazoo—Not a Debt-ridden City

KALAMAZOO, MICH.—In this age when government officials are criticizing cities for carrying a large debt—and the record warrants that criticism in many cases—the status of Kalamazoo is unusual.

Not counting the bonds issued to cover the property owner's share of public improvements or the public utilities bonds to be paid by the utilities, the net bonded indebtedness of the city, to be paid out of general tax revenues, is $129,500. With one small exception, the city has issued no bonds since 1918, when the commission-manager plan of government was adopted and the city went on a "pay-as-you-go" policy. The city regularly meets its share of the cost of street improvements by a budget appropriation of tax revenues and not by bond issues.

In addition to the $129,500 of outstanding bonds, there are outstanding $100,000 of short-term notes. This $100,000 represents notes given to spread over two to five years the cost of some of the larger items of civic betterment; to wit, City Hall site, cost $48,000; one mile of river-front park, cost $50,000; municipal golf course,

GRADE-CROSSING SIGNAL WITH WARNING LIGHT, ON A DELAWARE HIGHWAY

cost $10,000; municipal airport, 390 acres, cost $100,000; and the new Main Street bridge, cost $110,000. The city has also been carrying on improvements designed to give Kalamazoo a sewage disposal plant and all connections in about five years. It is very likely that this program will be carried out without a bond issue.

When it is stated that a city is running on a "pay-as-you-go" policy, the next thing to be considered is whether it is accumulating a deficit of public improvements or whether it is keeping pace with the times. Kalamazoo has been keeping pace.

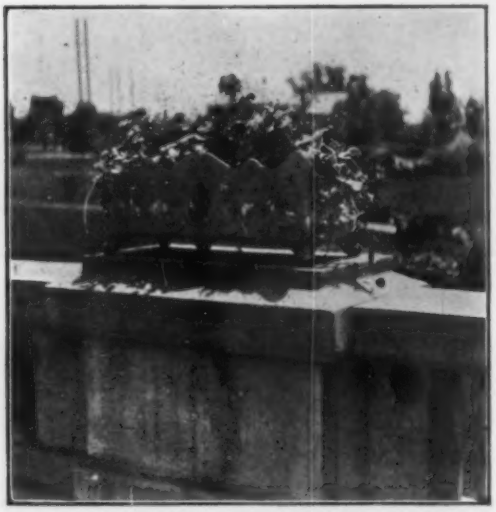
The public school system of the city is operated as an independent political unit. With regard to the school system, the public debt is about average—$45 per capita.

From these figures, it will be seen that the city debt is about $3.85 per capita.

EARL S. WEBER,
Secretary, Chamber of Commerce.

Flower-Boxes Adorn the Bridges of St. Marys

ST. MARYS, OHIO.—The accompanying photograph shows one of the many flower-boxes that have been placed upon the caps of the concrete posts of both the river and canal bridges in this city.



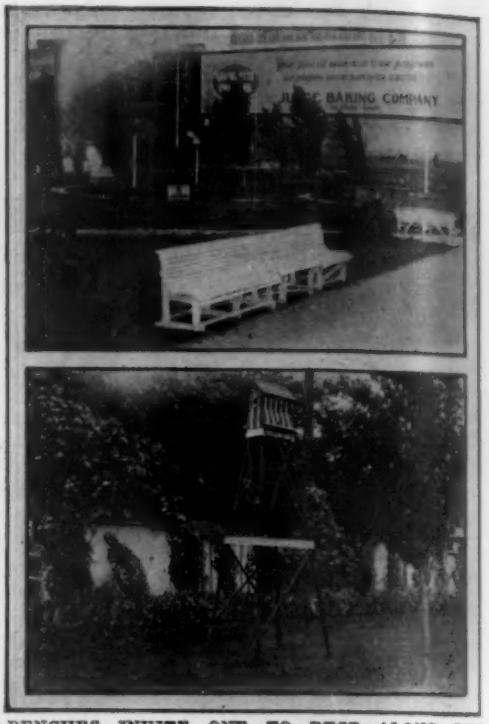
ONE OF THE FLOWER-BOXES GIVEN TO ST. MARYS, OHIO, BY A PUBLIC-SPIRITED CITIZEN

The boxes are 31 inches long, 13 inches wide, and 11 inches deep, and are made of cast iron. They are painted a light shade of Duco green, with the floral designs or embossed portions in yellow and black. In them are planted geraniums, asparagus vines, and Vinca, which harmonize beautifully with the color scheme of the boxes.

Both the boxes and the plants were donated to the city by Albert Herzing, one of the public-spirited citizens of this community. The plants were taken from Mr. Herzing's own private flower garden.

The boxes, with their contents, are very attractive and add a touch of color and beauty to the appearance of the entire street as well as to the bridges. The idea has created such a favorable impression that many surrounding cities are adopting the plan.

ROBERT F. KASER,
Secretary-Manager, St. Marys Chamber of Commerce.



BENCHES INVITE ONE TO REST ALONG THE PATHS THROUGH THIS GARDEN IN JOPLIN, MO. A garden scene along the lower part of the building wall blends with the actual park. Note the unusual bird-house in the lower picture

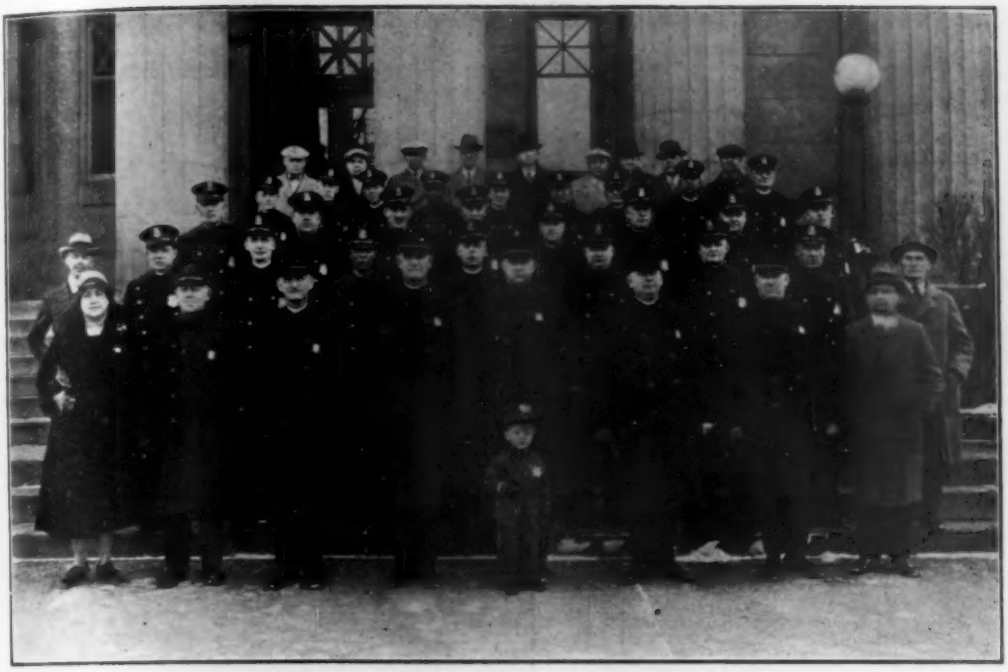
A Bakery Helps Beautify Its City

JOPLIN, MO.—It should be as important to make the grounds surrounding the industrial plants in our cities, as it is desirable to make the home grounds, spots of beauty and pleasure. Any manufacturing plant might take a lesson from the little park developed by this bakery in Joplin. A garden scene has been painted on the side wall of the bakery building and it blends in with the garden in an interesting manner. The wise use of lumber in the making of benches which invite one to rest along the paths in the little park is an interesting feature of this type of utilitarian advertising. A large number of birds find, every summer, a number of unusual houses perched high up from the ground to choose from. Graceful latticed arches add a touch of refinement to the garden with their bright, clean lines.

ALLEN P. CHILD.

Vitrified Brick Strips Make Slippery Pavement Safe

IN front of the City Hall at Cleveland, Ohio, the pavement becomes very slippery when wet. Pedestrians on their way to and from the City Hall, and the policemen serving in front of the City Building, frequently have had narrow escapes because automobiles were unable to stop when the traffic signal was suddenly turned against them. As a safety first measure, J. D. Tomson, Superintendent of Streets, hit upon the scheme of removing strips of the old pavement several feet apart and inserting sections of vitrified paving brick surface. City officials report that skidding has been reduced to a minimum since this improvement was made, according to *Dependable Highways*.



THE POLICE DEPARTMENT OF MUNCIE, IND.

Citizens Cooperate in Support of Shooting Competition by Police

MUNCIE, IND.—In keeping with its tradition of always doing something, Muncie has decided to fall in line with other cities that are teaching their policemen better shooting. It is indisputable that if the police are to carry revolvers for the protection of themselves and of those they serve, they should be able to shoot effectively. Some cities are offering added pay, graduated according to marksmanship attained; others have allowed time off each month, additional vacation, etc. In common with other towns, public interest was lacking here, and there were no funds available for ammunition. The way the problem was solved may be helpful to other cities.

The Mayor asked a member of the National Rifle Association to coach the men. A range was established in the basement of the new city building, and practice was started in the fall. In February the editors of the daily papers and a few of the key-men of the larger mercantile institutions were called into a meeting, and were told what had been done and what was in contemplation; that funds should properly be provided by taxation, but that it would be impossible to get them into the budget unless the citizens were interested. It was proposed to arouse interest by calling upon the citizens to make an investment in the plan through voluntary contributions to a fund for the purchase of ammunition and prizes for a tournament.

This met the approval of all. A folder was mailed out, referring to the papers for details and asking that those who cared to support the move fill out the folder and return it with pledges. Within a few days about $400 in money and more than $165 worth of merchandise were collected. Much interest is displayed, by the attendance at the matches and the way the public is talking of the shoot and watching its progress. The policemen have improved in their shooting; contests with the National Guard have been arranged, and it is hoped that matches with the police departments of other towns may be held.

LESTER C. BUSH,
Secretary, Muncie Chamber of Commerce.

City Electric Plant Brings Lower Rates

VERNON, TEXAS.—In 1922, when this city had a population of 6,000 to 7,000 people, as compared with about twice that number at present, we were supplied with electric light and power entirely by an outside corporation, which also made and sold ice. We were paying 15 cents per kilowatt-hour for electricity, and 90 cents per hundred pounds for ice. We had tried to obtain lower rates but were told that the company could not afford to offer them. At last the idea of competition was suggested and met with very general favor; a bond issue of $100,000 was voted, three to one, on January 10, 1922. The company thereupon reduced the price of ice to 60 cents, and also obtained a temporary injunction against the city. The people seemed disheartened at this, and matters were at a standstill until late in the year, when the Mayor proposed a new plan. The city had in its vaults an old issue of 5 per cent water-works bonds, amounting to $25,000, that it had been unable to sell at par, and that could not legally be sold for less. An arrangement was made with a machinery company to buy these bonds at par, in consideration of which fact the city agreed to purchase certain machinery from this company.

The owners of the old plant became desperate. Injunction after injunction was filed only to be denied; petty annoyances were resorted to; our water system was temporarily tied up. Other expedients were brought into play to defeat us, but to no avail.

The city began business with a 10-cent rate for lighting current and 5 cents for power, with a

sliding scale for large users of light or power; and the rates have never changed. When we started business, the company cut its rate to 8 cents; but service applications and connections to the city system were rapidly being made. In a few months the company's rate went down to 5 cents. This proved to be a boomerang; for on the day the cut was announced we got 30 customers from the company and lost none. After about a year at 5 cents, the company's rate went back to 8 cents.

Increased business has caused us to make several additions to our plant capacity. Our bookkeeper states that the number of our patrons increased 40 per cent from April 30, 1926, to April 30, 1927. We estimate that about 75 per cent of the total business of the city is handled by our plant. We believe in efficient service, and do not know what "shut down" means. We have a chief engineer with three men under him who work in eight-hour shifts; there are also a head electrician and three linemen. Gross receipts average $4,818 a month and expenses about $1,650, leaving a gross profit of about $38,000 a year. All additions have been made from earnings. Income from the plant has also been used for other expenses of the city, and Vernon enjoys an exceptionally low tax rate—$1.75 per hundred, including $1.00 school tax.

About a year ago the company offered the city $250,000 spot cash for the plant and obtained an order for an election. It was rejected three to one. I believe we could get $500,000 for it, and that the offer would be turned down by the same margin, for ample reason. I estimate that our patrons save $31,500 a year, and the remaining patrons of the company save $10,800 a year, in comparison with the old rates. The city also saves $14,520 a year on street lighting and water pumping, which, added to the saving to citizens totals $56,820. In view of all these considerations we think there are abundant grounds for keeping our own plant, and we think that other cities can profit by our experience.

H. D. HOCKERSMITH,
Mayor.

City Hall Design Selected by Architectural Competition Method

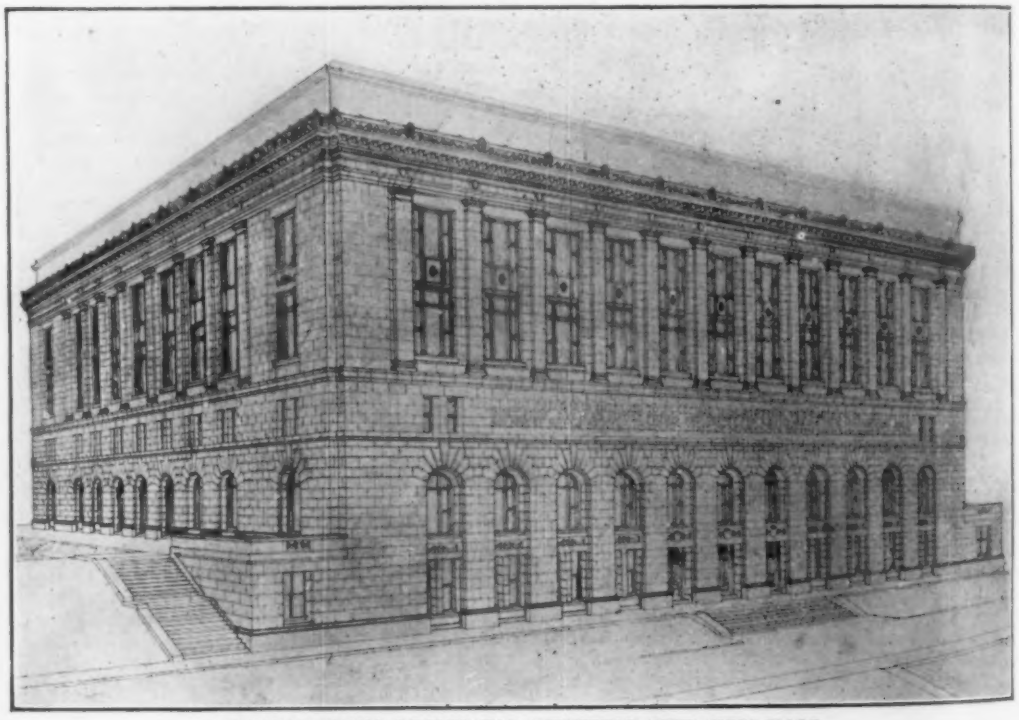
DULUTH, MINN.—After four years of unsuccessful effort in attempting to obtain a design for a new city hall which could be built for the money available, the Duluth City Commission finally conducted an architectural competition which resulted so successfully that the scheme bids fair to become an established practice for this city.

In 1922 the city employed the services of an architect to draw plans and specifications for a new City Hall, and specified that the cost of construction should not exceed $1,000,000. The plans eventually submitted called for a building estimated to cost about $1,500,000, though by employing cheaper materials and leaving certain portions unfinished the architect estimated that the total cost might be reduced to $1,250,000.

The general public and the Commissioners believed that a million dollars should be ample for a building adequate for Duluth's needs, and the contract with the architect was terminated.

Thereupon, the City Commission requested the Taxpayers' League, which is a bureau for municipal research in Duluth, to make a study of the space needed for each of the various city departments, and to prepare a schedule of requirements and facilities, so that a competition might be conducted for the selection of the architect and an appropriate design.

The competition program stated the offices to be housed in the proposed building, and specified the



PRIZE-WINNING DESIGN FOR DULUTH'S NEW CITY HALL

minimum square feet of floor area required by each department. These estimates anticipated the needs of the city for the next twenty-five years, though adaptability to future additions was regarded as an essential feature in judging the merits of the plans. The cost of the building was limited to $750,000.

Prizes of $1,500, $1,000 and $500 were offered for the best plans submitted, and three nationally known architects came to Duluth to serve as judges. These judges were selected by the Mayor from a list of eight names recommended by the Duluth Architects' Association.

A young Duluth architect, Thomas J. Shefchik, was awarded first place in the competition, and his services were promptly employed by the City Commission to complete his drawings and specifications.

When bids on the construction work were finally received, the success of the competition plan became evident. After accepting every possible alternate which would improve the appearance or utility of the building, such as bronze elevator cabs in place of steel cabs, and Minnesota granite facing instead of limestone, the total of all contracts came to but $710,000. The contract was let and work has begun.

Compared to the building first designed, the new City Hall has about one-third less cubical content, but has almost the same usable floor area. The utility space, while adequate, constitutes but 28 per cent of the total floor area, whereas in the earlier plan the space devoted to corridors, etc., amounted to about 35 per cent. In the new building future additions may easily be made, whereas under the old plan expansion was impossible.

All in all, Duluth is getting a building that is equally as serviceable as the building originally proposed. It is probably more efficient, owing to lack of excessive ornamentation and less heating area, and it is being obtained by a cost within the means of the municipality. Its site has been chosen in conformity to a grouping plan in which the County Building and a new Post Office is also included.

ROBERT M. GOODRICH,
Executive Secretary, Taxpayers' League of St. Louis County, Minn.

THE CHEMICAL TRUCK OF WHITEWATER, WIS., RETURNING FROM TWO HOURS' WORK AT A FARM FIRE 6½ MILES OUT IN THE COUNTRY

Showing Chief David Zuill, who has been with the Department more than 35 years

Fire Service Which Is Rendered Free to Farmers

WHITEWATER, WIS.—With the coming of paved roads the business men of this town of 3,200 people decided to try the experiment of having the Fire Department, of which many of these men are members, respond to calls for assistance from the country. This was in 1924. Of the twenty-one calls answered that year, six were in the country. So effective did the service prove that it was decided to continue it. The next year eight of the thirty-eight calls were from the country. In 1926 there were seventeen calls, of which five were rural. During the first three months of the current year the department has responded fourteen times, going into the country four times.

Fire Chief David Zuill, who has been with the Department more than 35 years, and who has served several terms as mayor, estimates that in the 23 responses to calls for aid in the country, $64,000 worth of farm property has been saved that otherwise would surely have been destroyed, an average saving of $2,873 per call.

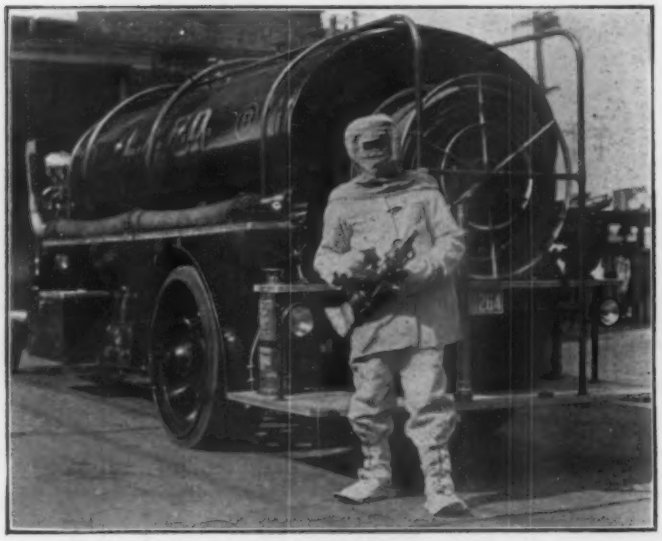
That this fire protection is appreciated by the farmers whom it benefits is shown by the fact that in every instance the person whose property was in danger has mailed the department a check—from $10 to $100. Frequently the insurance companies pay something. With the business men of Whitewater helping their farmer neighbors fight fire, it is small wonder that genuine good-will prevails. The men who go out on country calls receive no pay. The city donates the chemicals. One blast on the electric siren indicates a farm fire. Only part of the department makes a trip each time, the rest remaining to insure adequate city protection.

D. A. CALDWELL.

Asbestos Suits That Aid in Fighting Oil Fires

LOS ANGELES, CALIF.—The Fire Department of this city has in service ten suits of heavy asbestos, with mica frontpiece, which are part of the equipment of the Foamite chemical companies and are made by Johns-Manville, Incorporated. They are used to take lines of hose and portable mixing chambers onto tanks of oil on fire, that have no mixing chambers or foam extinguishing lines, or, if so equipped, have had these destroyed by explosion and fire.

This type of suit was first used, I believe, by Ford Alexander, the man who is noted for extinguishing oil fires in the oil fields with dynamite. Chief R. J. Scott of our Department was quick to see the advantage of these suits at fires where the radiation of heat makes it impossible to get close enough with hose lines to do effective work. The suits have proved their worth on several occasions, notably at the fire at Signal Hill oil field, February 23, 1926. This field is about 20 miles from Los Angeles, and on that date an oil well coming in with a great flow of gas caught fire and



ONE OF THE ASBESTOS SUITS USED BY LOS ANGELES FIREMEN IN FIGHTING OIL FIRES

started a serious fire in the field, which was soon out of control of the local department. Upon request we sent them several companies with Foamite wagons and suits. Upon arrival we found gas on fire was issuing from crevasses in the ground all around the wells. With the use of these suits and Foamite we were shortly able to extinguish the fire, which otherwise would have resulted in a conflagration in this district.

Los Angeles is the greatest oil storage port in the United States. We believe that asbestos suits are a very valuable asset to us in case of fire in the oil district, allowing us to work up close to an oil fire and extinguish it with a minimum loss.

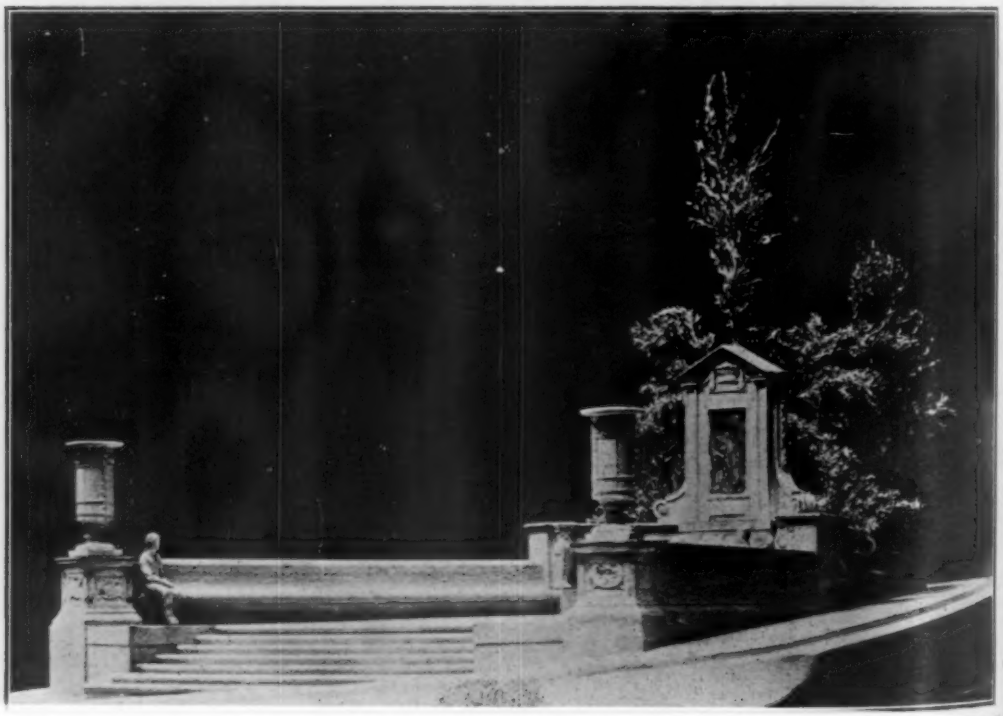
During the past year several of the large oil companies have provided these suits for their own use in case of fire.

SAM H. DODD,
First Assistant Chief, in charge, Fire College.

Imposing Memorial to Be Dedicated at Fire Chiefs' Convention This Month

AN imposing memorial to David Campbell, Chief of the Fire Department in Portland, Ore., who died in the line of duty on June 26, 1911, will be dedicated as a feature of the annual convention of the International Association of Fire Chiefs to be held in Portland in August.

The memorial will be in stone and bronze, in the form of a shrine approached by a flagstone terrace. In the center, water will flow from a bowl into a pool, and at the extreme back center a bronze relief of Chief Campbell in his fireman's uniform will be set in a frame of stone. The memorial will be 68 by 30 feet over all. The stone frame for the bas-relief will be 13 feet high. Stone benches will flank the structure, and at the end of each bench will be mounted a bronze lantern. Prof. A. T. Fairbank of the University of Oregon art school designed the memorial.



Zoning's Greatest Danger—Lawless Acts by Boards of Appeals

THE greatest danger that the cause of zoning faces at the present time is in the vast powers conferred upon boards of appeals and the possibility of these powers being misused.

Many students of the zoning movement have from the beginning feared the placing of such vast power in the hands of a few individuals, and have always pointed out the danger of its abuse.

With the growth of the movement, it is not strange, therefore, to find specific instances of such abuses coming to public attention. Such an instance was found recently in a case before the appellate courts of New York, in which the Board of Appeals of White Plains set the zoning law at defiance and practically nullified it in order to permit a petitioner appearing before them to carry out his desires.

In an opinion that castigates the Board of Appeals, the Appellate Division of the Supreme Court of the Second Department points out the gross impropriety of the Board's action in this case (*People ex rel. Stevens et al., versus Clarke et al.—Waukauf Corporation, Intervener*, 215 *N. Y.* 190.) Emphasizing the serious danger which threatens zoning through abuse of the powers vested in boards of appeals, this case illustrates strikingly the great value of the whole zoning system and the machinery that has been set up to operate it; for, had the power of intervening not been given to citizens whose interests were adversely affected, this case could never have been brought up on review. Again, had the decision of the Board of Appeals been made final, and had there been no power of getting their decision before the courts on certiorari, there would have been no opportunity of righting the wrong done in this case by this lawless Board.

The case arose upon the petition of a number of property owners who objected to the erection in the neighborhood of their property of an apartment house which violated the zoning law, and for which a permit had been denied by the building inspector but whose decision had been overruled by the Board of Appeals. The case had been heard at Special Term and a decision handed down setting aside and annulling the decision of the Board of Appeals, and from this decision an appeal was taken to the Appellate Division of the Supreme Court of New York.

In its unanimous decision written by Presiding Justice Kelly, the Court in no uncertain terms expresses its views on the action of the Board of Appeals in this case, pointing out that the Justice at Special Term had found that there was nothing in the record to show that there were "practical difficulties" or "unnecessary hardships" that would have justified the action of the Board of Appeals in setting aside the law. The Court said that it agreed with the learned justice at trial term and could find in the record no evidence whatever justifying the Board of Appeal's action.

In this case a New York city corporation sought to erect in a residential district, in which apartment houses were permitted, in White Plains, an apartment house that would have accommodated 92 families where only 53 are allowed by law, and to a greater height

Some of Zoning's Worst Enemies Are They of Its Own Household

Because of the seriousness of some of the attacks on the integrity of zoning ordinances which are resulting from the carelessness or complacency of boards of appeals (or boards of adjustment, as they are called in the Standard Zoning Enabling Act of the Department of Commerce), The American City has secured permission to reprint the enclosed article from the July number of Housing Betterment. This valuable journal of housing advance, as many of our readers know, is the quarterly magazine of the National Housing Association, of New York, and is edited by Lawrence Veiller, Secretary and Director of that organization.

Another important contribution to the problem of maintaining the integrity of zoning ordinances has been made by the Massachusetts Federation of Planning Boards, in devoting the June issue of its Bulletin to a series of articles on "Zoning Appeals." Edward T. Hartman, Executive Secretary of the Federation (37 State House, Boston) writes to The American City:

"I think that the most critical point in regard to the whole zoning scheme lies in board of appeals administration. Where a board assumes the power to vary the law to suit itself, and where, as is now happening, personal interest, favoritism, politics and cash affect the opinions of members of boards of appeals, no law will produce satisfactory results. We are confronting a serious situation throughout the country, and it is our hope that our little bulletin may be of some service in this connection."

than the law permitted, solely, as the Court expresses it, "because he expects to collect $40 per room and with the increased number of rooms collect more rent." The Court points out:

"There is not a word of evidence to show that the rental from the 53 families would not be a fair and reasonable return on the cost of erecting the apartment according to law."

On the question of covering a greater percentage of the lot than that prescribed in the ordinance, which was limited to 35 per cent in this district, the owner had stated his willingness to comply, but on the other points, as the Court puts it:

"As to the height and number of families, the appellant proposes to violate the law simply that it may put in 92 families instead of 53 and collect the extra rent. * * * There is no evidence to show that the return from 53 families will not be all that a reasonable man should ask. It seems to me the Board of Appeals are over-generous to the intervener appellant. *To increase its rent roll they do away with the law enacted by the Common Council of White Plains for the protection of its citizens.*

On the claim of practical difficulties or unnecessary hardships—the reason which, under the law, justifies a Board of Appeals' acting and the only basis for its powers—the Court says:

"The desire of the property owner to obtain more money from the building, standing alone, is no evidence of 'practical difficulties' or 'unnecessary hardships.'"

Interesting and significant is the grasp which the Court shows as to the social basis for the enactment of zoning laws, and, especially, the requirement for limiting the number of families in a given district. On this point the Court says:

"The added burden of 92 families over the 53 families allowed by the zoning law, the added congestion in the comparatively narrow streets caused by automobiles, delivery wagons, the noise, the destruction of all that made the locality attractive for homes, is graphically described by the respondent property owners."

We commend this decision of New York's Appellate Court to the members of every Board of Appeals throughout the country. They would do well to read it, ponder it and let it be their guide in future.

That the Board of Appeals in White Plains is not the only body of this kind that fails to obey the law plainly indicated for its guidance, is evidenced in a case decided recently by Justice Ingraham at Special Term of the New York Supreme Court (*People ex rel. Lovett et al. versus Walsh et al., N. Y. Law Journal, July 2, 1926*). In this case the New York City Board of Standards and Appeals had granted a temporary permit permitting a residence in a residential district to be used in part for the undertaking business. In doing this they imposed very definite conditions to the effect that no sign other than a small glass sign on the inside of the ground floor window should be on display, that no structural alteration or change should be made, that the use of the premises for this purpose should be limited to a term of two years, that it should be confined to the front room on the first floor for a licensed embalmer's office and mortuary chapel, the remainder of the building being restricted to residential or dwelling use.

Nothwithstanding these conditions and the fact that the building in question was but one house removed from a business district, the Court very properly held that the action of the Board of Standards and Appeals was an abuse of discretion, because of the fact that there were no practical difficulties or unnecessary hardships involved. Perhaps boards of appeals will ultimately learn that they, like others, must obey the law.

A Reign of Lawlessness

That conditions are developing in the New York City Board of Appeals which cause grave concern and which may develop into a serious scandal unless soon dealt with, has been evidenced recently by several decisions of that body, which have been the subject of adverse comment by the higher courts.

Probably the most flagrant instance of improper action by a board of this kind in exceeding its clearly defined powers is to be found in what is known as the Fordham Manor case, decided a few weeks ago by the New York Court of Appeals.

This case hinged upon the action of the New York Board of Appeals in reversing the action of the Superintendent of Building, denying permission to erect a garage in a strictly residential district and permitting the owner to practically set aside and nullify the provisions of the zoning law by putting a garage in a district which the city authorities had definitely determined should be a residential district.

In a well-reasoned opinion written by Judge Cardozo, the brilliant Chief Justice of the Court of Appeals, the action of the Board is rightly characterized as, in effect, a changing of the city map and a legislative act of the Board of Appeals, thus invading the powers of the Board of Estimate, the official body charged with responsibility for determining the zoning districts of the city. On this point Judge Cardozo says:

"We thwart the scheme of the statute if we uphold a resolution for the concession of a privilege with neither evidence at the hearing, nor allegations in the answer to be accepted as a substitute for evidence. The Legislature has said that there shall be review by certiorari. Such review becomes impossible if without supporting evidence or equivalent averment the mere conclusion of hardship is sufficient and indeed decisive. There has been confided to the Board a delicate jurisdiction and one easily abused. Upon a showing of unnecessary hardship, general rules are suspended for the benefit of individual owners and special privileges established. * * * Judicial review would be reduced to an empty form if the requirement were relaxed that in the return of the proceedings any hardship and its occasion must be exhibited fully and at large. Safeguards of this order have at times an aspect of triviality when our scrutiny is narrowed to one instance or another. Their value is perceived when the outlook is extended to something wider than particulars. Disclosure is the antidote of partiality and favor."

Insufficient Reasons Assigned

The particular gravamen of the Court of Appeals' reversal in this case is founded upon the fact that not only was there apparently no "unnecessary hardship" or "practical difficulty" which would have warranted the Board of Appeals in setting aside the law, but that the Board of Appeals was so careless of its responsibilities and of due process of law that it did not even take the trouble or pains to have the record show the slightest reason for the claim of "unnecessary hardship" or "practical difficulty." On this point the Court says:

"We think the reasons assigned are insufficient to supply a basis for a departure from the map. They amount to nothing more than this, that a garage may be built because there is another one next door. * * * It is not a sufficient reason in and of itself in a district set apart for residences. There must then be a showing of something more, a showing of "unnecessary hardship." If such hardship exists, the reasons for its existence should appear from the return. Only thus can a court know whether they are substantial or illusory. The reasons may be made to appear in one or other of two ways. The hardship may be found as an inference from evidence submitted at a hearing. * * * At all events, when there is evidence in the record, whatever inferences therefrom are proper will be presumed, in aid of the dispensing resolution, to have been drawn by the Board. * * * To characterize the situation as a hardship, without more does not tend in any substantial degree to enlighten a reviewing court. There must be disclosure of the facts from which hardship in inferred. * * *"

Assuming Legislative Functions

Discussing the question of a Board of Appeals' overstepping its powers and invading the field of the Board of Estimate, the body charged with responsibility for determining the zoning districts of the city and for making changes in those districts, Judge Cardozo says:

"The power to change the map is reserved by the charter to the Board of Estimate and Apportionment. The power of the Board of Appeals is confined to variations in special cases to meet some unusual emergency, some unnecessary hardship."

And on the broad question of the power of Board of Appeals which this Court has heretofore strongly sustained, the Court says:

"Previous decisions of this Court have conceded a wide scope to the discretion of the Board. We have no thought to retract or qualify them by anything now said. * * * Not improbably the Board has made a mistake in granting like favors to other owners in the past. This did not mean that it was subject to a legal duty to enlarge the field of encroachment and thereby magnify the error. The question was not 'whether some one else' had 'been favored.' The question was 'whether the petitioner' had been illegally oppressed."

Excessive Height Variance

This is by no means the only flagrant case that has characterized recent action by this Board. The columns of the daily press not long ago called attention to the action of the Board of Appeals in granting permission for the erection of a skyscraper in the financial district 25 stories high to be located at Broad and Beaver Streets. In this district, under the zoning law, buildings are limited [as to the height of street walls] to 2½ times the width of the street, practically the most generous provision to be found in the zoning law. Notwithstanding this, the Board of Appeals has practically flouted the law and the city authorities by permitting this building to be erected 103 feet higher than that allowed by the zoning laws.

The surrounding property owners are reported to be up in arms, to have pooled their interests and to have started legal proceedings to restrain the erection of this unlawful building. It is stated that the case will be carried to the Court of Appeals.

Commenting on this action Edward M. Bassett, the country's leading expert on zoning, said recently:

"I consider that the variance at Broad and Beaver Street is the greatest abuse of discretion on the part of the Board of Appeals that has occurred thus far. There may be others as bad, but I do not know them. Immediately on the rendering of the decision I wrote a protest to the Chairman of the Board stating that his Board could not possibly have made a finding of 'practical difficulty or 'unnecessary hardship' in that particular case. Notwithstanding that the location is in a "2½ times district," the variance is for about 5 times. The ground of the variance appears to be that, inasmuch as the builder could erect a pyramid with a considerable floor space, he might as well be allowed to omit the pyramid and put nearly as much floor space behind street walls. Of course, if this argument should be followed by a discretionary board, street walls on large plottage

might be erected 8 and 10 times the street width."

A Public Scandal

That the public at large are becoming aroused to these flagrant and lawless acts of the Board of Appeals was evidenced recently by a formal communication sent by the Citizens Union to the Mayor of the city of New York and made public in the daily press. That organization of citizens demanded that Mayor Walker undertake a thorough housecleaning of the Board of Standards and Appeals, saying:

"It is high time that Mayor Walker took drastic action concerning the Hylan hangovers who are the Board of Standards and Appeals. At the very moment that decisions of the Supreme Court of the United States and of the courts of this state are upholding the principles embodied in our building zone resolutions, this Board, intended to be its protector, is steadily nullifying this safeguard of the health, comfort, safety and property of the people of the city. . . .

"In numerous cases, in which there has been absolutely no showing of practical difficulties or unnecessary hardships, the Board has granted variances from the provisions of the resolution. Discretion necessarily entrusted has been notoriously abused, often in the interest of real estate speculators who have been well aware of the restrictions governing the property which they have bought or desire to buy, but who, nevertheless, have succeeded in persuading the Board without proof that they should be granted special privileges."

The Board of Appeals cannot plead ignorance of the law or inexperience as an excuse. It has been in existence too long to plead that its action has been inadvertent or without full knowledge of the law or of the Board's functions and the limitations under which it works. There have been too many decisions of the higher courts pointing out clearly and definitely the line of limitation of the Board's powers to warrant any such plea.

The Citizens Union is right. It is time that Mayor Walker made a thorough housecleaning of this Board, whose actions are little short of scandalous.

Total of 19,492 Miles of Roads Surfaced During 1926 by State Highway Systems

A STATEMENT just compiled from reports of the various state highway departments and issued by the Bureau of Public Roads of the U. S. Department of Agriculture shows that the total length of surfaced roads constructed by state agencies during the year 1926 was 19,492 miles, of which 13,664 miles was laid over former earth roads and 5,828 miles represented a rebuilding of old surfaces.

These figures refer to increases in surfaced mileage on the state highway systems only and do not include surfacing laid by the counties or other local governments. They do include, however, all work done with Federal aid.

A statistical table issued by the Bureau of Public Roads on July 17 shows that the combined state systems embrace 287,928 miles and that of this mileage 163,059 miles is surfaced and 28,456 miles is graded and drained according to engineering standards. The state systems are now about 66 per cent initially improved. The types of surfaced roads existing at the end of 1926 were as follows:

	Miles
Sand-clay and topsoil	11,396
Gravel, chert and shale	79,286
Waterbound macadam	18,428
Bituminous macadam	12,927
Sheet asphalt	890
Bituminous concrete	4,813
Cement concrete	31,935
Brick	3,215
Asphalt, wood and stone block	165

The table obtainable from the Bureau of Public Roads shows the total mileage in the state highway systems of each of the 48 states and the surfaced mileage at the end of 1926.

Minnesota's Death-Rate from Automobile Accidents Reduced

ALTHOUGH automobile registration increased 10.6 per cent in 1926 over 1925 in Minnesota, the number of deaths from automobile accidents in the state showed a decrease of 11.1 per cent in the same period. According to figures compiled by the National Safety Council, the total deaths for the United States increased from 17,226 in 1925, to 18,121 in 1926, while the Minnesota total decreased from 359 to 319.

The building of wider highways, elimination of sharp turns and other hazards, and the marking of all dangerous places, both by the State Highway department on trunk highways and by many counties on secondary roads, contributed to the reduced mortality. "Good traffic laws, efficient enforcement, and elimination of highway hazards are three important factors in accident prevention," C. M. Babcock, Commissioner of Highways, states. "Another big factor is safety education. Safety requires eternal vigilance. The need of carefulness must be continuously and repeatedly brought home to drivers, passengers, pedestrians, parents and children. The newspapers of Minnesota are entitled to a lot of credit for the cooperation they have given to this department and other agencies that are trying to promote highway safety. They have given a large amount of space, without recompense, to traffic laws and safety propaganda, and this has been of incalculable value."

The figures on auto fatalities for Minnesota do not include deaths in grade-crossing accidents. Figures compiled by the Minnesota Railroad Commission show 34 killed in collisions between trains and automobiles in 1925, and 29 in 1926. The "Stop" crossing law* and the elimination of grade crossings have contributed largely to this result.

*See THE AMERICAN CITY for April, 1927, page 478.

ANOTHER SPIKE IN IT!

THE ONWARD DRIVE OF THE CITY MANAGER PLAN AROUND THE COFFIN OF CORRUPT POLITICS, AS VISUALIZED BY THE NEW YORK TELEGRAM AND TWENTY-FIVE OTHER SCRIPPS-HOWARD NEWSPAPERS THROUGHTOUT THE UNITED STATES

The result of the special election of June 21, at which Indianapolis adopted the city manager plan by an overwhelming vote, was recorded in The American City for July, page 93

Playgrounds Affiliated with the Harmon Foundation Win $5,900 in Awards

By Evelyn S. Brown

IT was the last of a series of "Achievement Days" in Granville, Ohio, when men and boys in the little village of 2,000 inhabitants were called upon to contribute their labor toward the development of the playground. The flat surface required for tennis courts, football field, baseball diamond, and equipment meant the removal of 6,800 cubic yards of earth from the ridges to the depressions on Harmon-Burke Field.

Everyone was determined that this be done without expenditure of the cash contributions collected in a recent drive for funds. Farmers came with teams of heavy draft horses, and as the day set was that following Thanksgiving, 1926, high school boys on vacation were free to man the scrapers. Women of the community were doing their part by serving a hot lunch for the workers in the school cafeteria.

This cooperative spirit in Granville resulted in such outstanding accomplishment, that in June, 1927, the playground received the first award of $1,000 from the Harmon Foundation of New York in the Honorarium Contest which this organization conducts annually among its affiliated fields.

Playgrounds located in all parts of the country, established through the assistance of the Foundation as permanent recreation tracts of land, competed. Awards were based on progress shown on fields, between March 1, 1926, and March 1, 1927, in improvements or beautifications; and on any educational propaganda, awakening people to the necessity of setting aside space permanently for play and recreation in advance of growth. Individuals as well as communities were eligible to recognition.

Honorariums totaling $5,900 were awarded to thirty-nine Harmon Fields and to two persons who had been responsible for playground promotion in their own and other communities; R. L. Whitcomb of Martin, Tenn., received $100, and Dr. George Huff, Chaffee, Mo., $50.

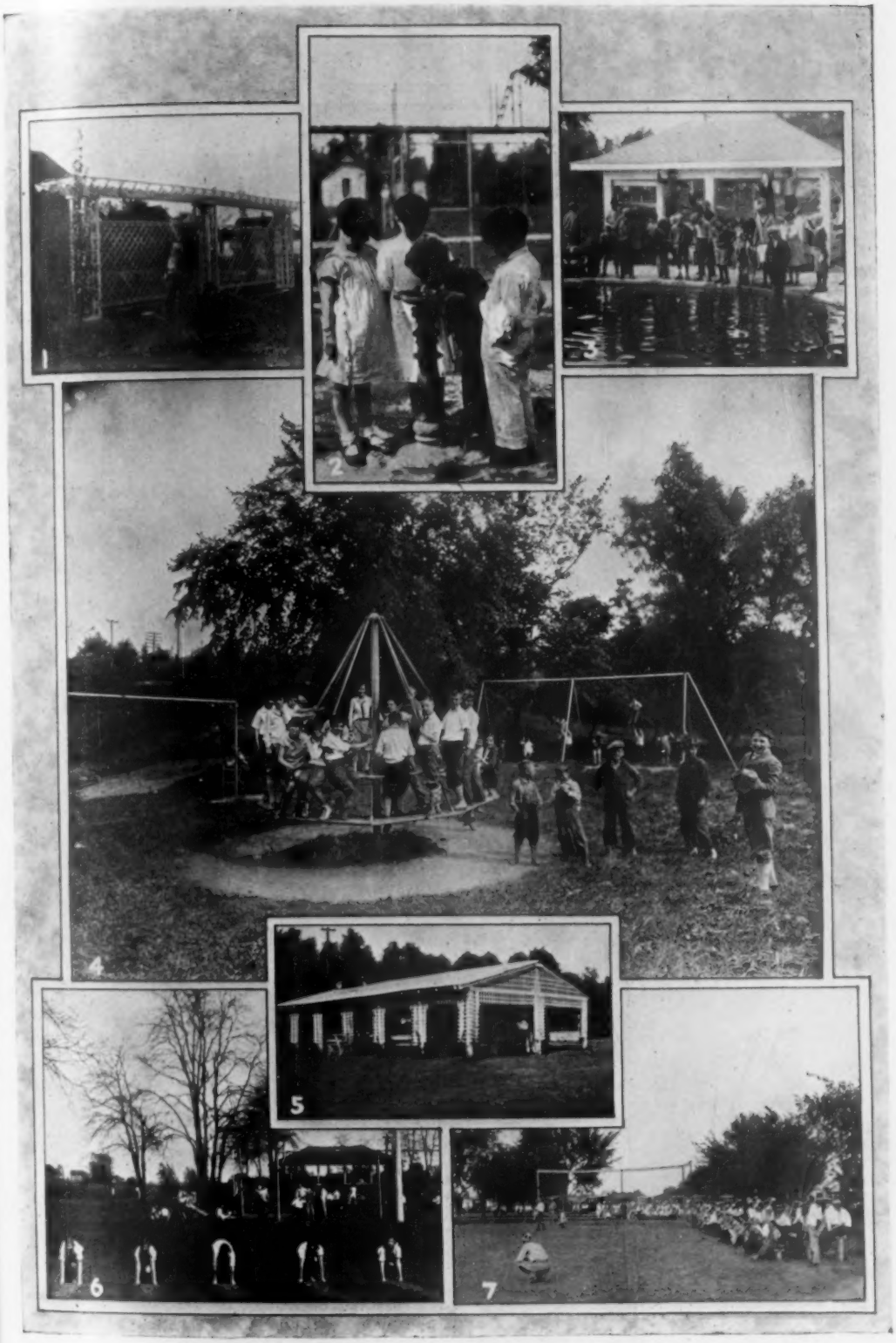
Sidney, Ohio, with a field development for activities the year around, combining utility with an attractive layout, was given the second award of $500. Apparatus and a wading pool for the children have been grouped before a background of trees and shrubs, while in another section the gradual slope of a hill has been adapted in winter to sliding and skiing, and in the warmer months to serve as a natural grandstand for the viewing of athletic contests on the field at its base.

Two third awards of $300 were given West St. Paul and Worthington, Minn. Dirt banks were thrown up for an ice-skating rink on West St. Paul playground, the field was enlarged through the addition of an adjacent strip of land, and an outdoor basketball court and a baseball diamond were built. At Worthington, the 51.74-acre tract on Lake Okabena has been divided into a golf course and children's playground. Other fields where improvements were sufficiently outstanding for honorariums, and the amounts granted, were:

Wauseon, Ohio	$250	Eureka Springs, Ark.	$75
Paulding, Ohio	250	Franklin, Ohio	75
Bellefontaine, Ohio	200	Hillyard, Wash.	75
Kearney, Neb.	200	Madisonville, Ky.	75
Bend, Ore.	150	Mayfield, Ky.,	75
Bicknell, Ind.	150	Stamford, Texas	75
Paragould, Ark.	150	Wellsville, Ohio	75
Pipestone, Minn.	150	West Carrollton, Ohio.	75
Lebanon, Ohio	150	Alamosa, Colo.	50
Martin, Tenn.	150	Canton, Ga.	50
Stuttgart, Ark.	150	Coffeyville, Kan.	50
Bluffton, Ohio	100	Fort Lauderdale, Fla	50
Fremont, Ohio	100	Fostoria, Ohio	50
Sturgis, Mich.	100	Herkimer, N. Y.	50
Wapakoneta, Ohio	100	Houma, La.	50
Williston, N. Dak.	100	Miamisburg, Ohio	50
Bucyrus, Ohio	75	Twin Falls, Idaho	50
Chaffee, Mo.	75		

Additional Awards to Be Made in June, 1928, for Progress and Publicity

Honorariums for Harmon Fields to be awarded in June, 1928, have been planned for the purpose of enlarging the usefulness of affiliated playgrounds in bringing about not only a wider interest in recreation locally but increased activity in the permanent playground movement. Determination of the relative progress on the various fields competing will be decided by the facts as shown through magazine and newspaper publicity and photographs. A jury of five, to be announced in September, will pass upon the material submitted, covering the period from March 1, 1927, to May 1, 1928. Articles and pictures entered must show development on the field in improvements on the land, equipment or organized leadership. A total of $5,000 will be given in fifty-nine awards, ranging from $500 to $50. Entries in the contest will be used by the Foundation wherever desirable as an incentive to the establishment of more playgrounds, so that every Harmon Field competing becomes, through story or picture, an "ambassador" of permanency in recreation lands.



Views of Harmon Fields: (1) Pergola screen, with plantings, Bellefontaine, Ohio; (2) drinking fountain, Paulding, Ohio; (3) walk at shelter house, Paulding; (4) merry-go-round and swings, Sidney, Ohio; (5) pavilion, Paragould, Ark.; (6) girls training for Warren County track and field meet; (7) twilight baseball game, Kearney, Neb.

How Shall Cities Insure Their Property?

Criteria for Insurance in Private Companies and Creation of Municipal Funds

A STUDY of municipal insurance, based upon a survey of the practice of cities in insuring their property and liability risks, has recently been made by the Municipal Reference Bureau of the University of Kansas. Orin F. Nolting, Secretary. It is published jointly by the Bureau, the International City Managers' Association, and the League of Kansas Municipalities, at Lawrence, Kans., in the form of a booklet entitled "Municipal Insurance." The following recommendations are made:

I. In order to reduce the fire hazard, public buildings such as city halls, water and light plants, and schools, should be of fireproof construction. Detention homes and hospitals should be fire-resisting throughout. State law should compel this.

II. The inclusion of a mandatory insurance clause in bonding laws is desirable, especially in cities where the needs for new construction are already heavy and where the law does not require fireproof construction.

Criteria for Insuring in Private Companies

III. Cities should provide some method of protecting their property against possible loss. Because of the varying conditions, even in cities of the same population, no single method can be prescribed to meet the needs of every city. The buildings of one city may be of superior construction while those of another city may be poor risks. In general, however, all cities, except those with 500,000 or more population, should insure their large and extra-hazardous risks in regular companies. It may be advisable for the smallest cities to insure all of their property in the companies. The following criteria are suggested for those cities insuring in private companies:

1. The 80 per cent co-insurance clause* should be used on protected property, as about one-third more insurance protection can be secured at the same cost as before. If the co-insurance clause is not used, the city should arrange to receive sealed proposals from various insurance companies. Insurance should be bought in the same way as any other commodity. The lowest bidder, if it is a fire insurance company of good standing, would get the contract. The standing of the company may be ascertained with the aid of Best's Insurance Guide.

2. Policies should be written for either three or five years instead of one. The three-year term rate is usually two and one-half times the one-year rate.

3. If possible, maturities of policies should be arranged so that an equal amount will become due each year. This will help simplify budget planning.

4. The valuation of property for insurance purposes should be determined by an appraisal either by the insurance experts or by an appraisal concern and also by the chief engineer of the fire department or city engineer.

5. It is desirable that the insurance on all city-owned property, including schools, be handled by one person. In the large city it should be in the hands of a deputy controller, or of an assistant to the director of finance, and in the small city in the hands of the city treasurer.

IV. Cities having a population of 500,000 or more probably would not need to create an insurance fund, but could carry their losses by appropriation from the general fund or a bond issue. In other cities an insurance fund might be created to cover possible losses. A city having over 200 distinct risks can safely carry its own insurance.

Practice Recommended in Creating a Municipal Fund

In creating a municipal fund the following practice is recommended:

1. An ordinance should be passed providing for an ex-officio Insurance Fund Commission, composed of the mayor or city manager, the director of finance, city controller, purchasing agent, and chief engineer of the fire department. This commission should be given the power to fix the rates, decide on what property should be covered by the fund, and what property, if any, should be insured in private companies.

2. The ordinance should provide for the appropriation of a certain amount of the fund each year until the fund has reached an amount sufficient to carry the risk. Appropriations should again be made to the fund if the amount in the fund ever falls below the amount set. As the fund increases, the policies in private companies should be canceled or allowed to expire gradually.

Another method: Instead of making a lump appropriation, each department, board, and commission might be required to pay into the fund an amount approximating that which would be paid for insurance in private companies.

3. The insurance on all of the city-owned buildings, excluding, if possible, school property, should be handled by the commission. Re-insurance should be carried on the large and dangerous risks.

4. The fund should be invested in securities that may be readily sold for cash.

5. In case of loss, the chief engineer of the fire department and the department head who has charge of the building on which the loss occurred, should decide on the replacement cost, or other basis on which the commission has decided that reparation is to be made. The decision reached should be approved by the commission before payment is made.

V. The method to be used in insuring city-owned property cannot be determined on the population basis alone. Tax limitations, bonded indebtedness, and "ability to pay" cannot be ignored in arriving at a decision.

VI. The laws of a number of states determine the practice to be followed with reference to workmen's compensation insurance. If the law is elective liability insurance should be carried in private companies for employees engaged in extra-hazardous work. For other employees the large city could carry its own insurance by creating a fund for the purpose or by appropriating from the general fund. It usually is good business policy for the smaller cities to carry workmen's compensation insurance in private companies even though the statutes may not require them to do so.

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* EDITORIAL NOTE.—This is explained in the original by the following foonote: "The 80 per cent or Reduced Rate Average Clause means that if, at the happening of a loss, the amount of insurance on the described property equals or exceeds 80 per cent of the value and the described property is totally destroyed, the insured is entitled to collect the full amount of loss—not exceeding the total amount of insurance. Best's Insurance Guide, 1926, p. 391." It might be added that this is true whether the property is totally destroyed or not, and that the 80 per cent clause furthermore provides that if the insurance carried is less than 80 per cent of the value of the property, the insured can collect only such proportion of the loss as the amount of insurance carried bears to 80 per cent of the value. The premiums under this arrangement are lower than otherwise, as mentioned above.

Burning of Wood Floor Causes Bridge Collapse

By George C. Stone
Consulting Engineer, Altavista, Va.

BUILT in 1887 to connect the main portion of Danville, Va., with a growing suburban textile center, now a part of the city, on the north side of the Dan River, the old "Iron Bridge" collapsed on June 30, 1927, as a result of the burning of the wood flooring. This bridge crossed the river with six spans of 136 feet, 9 inches, each. The flooring consisted of 3-inch creosoted wood blocks on end, over a layer of waterproofing felt, over 4-inch square-edged creosoted plank laid close, over 3-inch by 14-inch creosoted timber stringers. Foot walks supported by brackets on each side of the bridge were of 2-inch untreated planking. The bridge floor had been made much thicker and heavier than originally, to care for a large increase in the live load, from the original horse-drawn traffic to heavy motor trucks, a street-car line, a gas main, cables, and a large pedestrian peak load. Nevertheless, the failure of the bridge was not caused by increased load.

The worn block paving was in process of being replaced, and two spans had been finished, when a barrel of tar, just unloaded at the tar kettle, on the fourth span, burst and scattered its contents in all directions as the head was being broken in. The tar ignited and ran out over the wood flooring, old and new; some of it seeped down through the joints between paving and hub guards and thus the wood deck became ignited top and bottom. Almost in a moment the entire floor of the fourth span was in a hot blaze.

The fire department responded promptly and attacked the fire from both ends of the span; but in less than twenty minutes after the explosion the fourth span was down and the flames were eating their way along the flooring of the fifth and third spans. Only a few more minutes elapsed before the fifth and third spans collapsed; then the flames were checked on the north end of the bridge, saving the sixth span practically unharmed, but the breeze carried the fire toward the south shore and before ten o'clock, or less than two hours after the beginning, the second span, too, was in the river. The first span was saved. The writer examined the truss members as the spans lay on the river-bed in about two feet or less of water, and was impressed with the evidence that failure of each span was due to the buckling of a compression member or members due to the softening of the metal by the heat from the burning flooring. He was unable to find any broken or perceptibly elongated eyebars.

THE FIFTH SPAN OF THE COLLAPSED DANVILLE BRIDGE, WITH BUCKLED MEMBER IN FOREGROUND

While this is not the first instance of a fire in the wood flooring injuring the steel trusses of an American bridge, this occurrence should merit thoughtful consideration of engineers and of public officials as to the use of wood-paving, or tar or creosote, for floors of bridges with exposed steel trusses—although many notable steel bridges of this country have such wood flooring now.

Initial steps have been taken toward the replacing of the burned bridge, probably with a wider structure of reinforced concrete, or a concrete deck on steel girders or trusses.

Municipal Purchasing Methods and the "Lowest Responsible Bidder"

By Russell Forbes

Director, Municipal Administration Service, New York

WRITING on the subject of "The Purchase Price" in the June issue, the Editor of the *Highway Magazine* expresses in no uncertain terms his opinion of present-day purchasing methods in government. Sharply contrasted with the rapid progress made in highway engineering and construction, the methods of purchasing highway materials and equipment are described as having made practically no progress in the past quarter century.

The editorial admits that the requirement for competitive bidding is a necessary safeguard of public funds. The practice of awarding the order to the lowest responsible bidder, however, is condemned as a retarding influence. "While it has closed the door to corruption," we are told, "it has also closed it to progress. The clause 'lowest responsible bidder' has come to be a convenient shield against an inconvenient responsibility."

While the present writer believes that this statement is too sweeping, it must be admitted that public purchasing agents too often follow the course of least resistance in buying. Many of them lean very heavily upon the newspaper advertisement as a means of securing competition, and upon the sealed bid as a means of escaping the responsibility of determining the most suitable source of supply. The fault here, however, lies not with the legal provision but with the manner of its execution. The requirement for competition and the award to the lowest bidder need not be a handicap. Direct requests for bids can and should be used as a supplement to newspaper advertising to arouse wider competition. Greater competition generally leads to more advantageous bids. By going into the market early enough, the purchaser can reject all bids on the first letting and re-solicit bids, except in cases of emergency.

The courts tend toward a liberal construction of the "lowest responsible bidder" clause. To cite only one jurisdiction, the New York courts have held, in the leading case of *Knowles vs. City of New York*, 74 *App. Div.* 632, that the city may, like any private individual, call for the product of a particular manufacturer, where that product is of a generally recognized excellence, and may in awarding the order give preference to bids on that product over bids for products of a somewhat similar quality or nature. Then, too, many lines of supplies have been exempted entirely from the "lowest bidder" requirement. It has been held that this provision does not apply to:

> The renting of rooms for use of city, *Davis vs. the Mayor*, 83 *N. Y.* 207; The hiring of a dock, *Farmers' Loan and Trust Co. vs. the Mayor*, 4 *Bosw.* 80; Scientific knowledge and professional skill, *People ex rel. Smith vs. Flagg*, 5 *Abb. Pr.* 232; Services of architects, *Peterson vs. the Mayor*, 17 *New York* 449,453.

Other courts have interpreted this clause to be inoperative when the low bid is detrimental to the best interests of the city or public welfare.

The *Highway Magazine* further claims that "the lowest responsible bid can usually be depended upon only to yield the lowest degree of utility acceptable," and that "it tends to establish and perpetuate the 'least acceptable utility,' and is for that reason an obstacle to the best development of the highway industry." This no doubt is true if specifications are not properly drawn. Most governmental units today give detailed specifications of the material or service to be bought, as a basis for the submission of competitive bids. Such specifications should not only clearly specify the quality which will render the best service, but should be revised from time to time to keep pace with progress in manufacturing practices. If this be done, the least acceptable utility at any given time will not be perpetuated, or be acceptable for all future time. More and more, state, county, and city highway departments are making use of scientific chemical and physical tests to determine whether the quality submitted with the bid and the quality delivered conform to specifications and will satisfy the performance requirements.

Awarding Contracts on a Basis of Quality and Performance

Some state and local laws now permit the order or contract to be let to the lowest and *best* bidder. "Lowest and best responsible bidder," says the charter of Akron, Ohio. The Purchaser of Supplies for the City and County

of San Francisco is authorized to award the order or contract to other than the lowest bid, if it be to the public interest to do so. This clearly gives the purchasing official discretionary power to determine which bid is best, not solely on the basis of price alone, but on the bases of price, quality and performance. Such a clause is to be preferred to the usual one, naming the "lowest responsible bidder." As regards New York City, even though the charter requires that the business be let to the lowest bidder, the Court has held that this implies a judicial determination on the part of the public officials. Thus, speaking in the case of *East River Gas Light Company vs. Donnelly*, 93 *New York* 557, the Court said: "In addition to the proposal sent in by the plaintiff, others were submitted by various parties. . . . It was the duty of the defendants to choose between these illuminating substances, to determine the responsibility of the bidders, the sufficiency of the security offered, the greater or less economy and desirableness of the several means of lighting, and this could only be done after comparing the bids and the advantages of the methods proposed. As to all these things, there must first be investigation and inquiry, then discretion, and afterward determination and judgment."

The present weakness in the letting of public contracts, so forcefully described by the *Highway Magazine*, can to a great extent be eliminated either by a more liberal court interpretation of existing law, such as the above citation, or by the adoption of new laws granting discretionary power to the buying official, such as those now effective in Akron and San Francisco.

Massachusetts Utilities Board Vigorously Champions Actual Investment as Against Reproduction-Cost Rate-Base

THE Department of Public Utilities, which is the rate-regulating body for Massachusetts, has long maintained the policy of basing public-utility rates upon the actual prudent investment by the company whose rates may be under consideration. It has done so in the face of a tendency on the part of the United States Supreme Court to favor the cost of reproduction at present prices as the controlling element in the determination of a rate base, culminating in the Indianapolis water case decision.*

The issue is strikingly raised by the Department's recent action with regard to the electric rates in Worcester, Mass., as reported in the *Electrical World* for June 11, 1927:

"In one of the most drastic findings ever issued in the Bay State the Massachusetts Department of Public Utilities has ordered the Worcester Electric Light Co. to reduce its maximum rate from 7 to 5 cents per kilowatt-hour, fixing the rate base at a maximum of $10,000,000, instead of the $17,837,965 claimed by the utility. Chairman Attwill and Commissioners Goldberg and Stone set the new rate at 5 cents, Commissioners Hardy and Wells submitting a minority finding of 4.5 cents. The decision vigorously supports the Massachusetts doctrine of establishing the rate base on the capital invested rather than on the reproduction value of the property less depreciation. It is estimated that the reduction will amount on residential and commercial lighting bills to $355,111 per year and that the net revenue available for dividends will yield about 6 per cent on the ten-million-dollar rate base. . . .

"The company maintained that it is entitled under the United States Constitution to such rates as will permit it to earn a fair return upon the value of the property employed in its business, and that this value is to be determined by the cost of reproduction, including going value, cost of financing, organization, engineering and supervision expenses, less observed depreciation. The Commission declares its opinion that the law does not require the adoption of such a rate base in Massachusetts. Much of the property has been built up out of earnings. The Commission contends that the reproduction-value rate base is unsound legally, historically and economically; that its constant variation renders it incapable of easy or speedy determination, and that in periods of enhanced prices it leads to exorbitant rates and in periods of depression to much less than a fair return upon the invested capital. . . .

"Commissioners Hardy and Wells declare in their minority reports that the time has come to find out whether the long period of regulation in Massachusetts under which these lighting utilities have prospered is to come to an end, and whether, as pointed out in the recent report of the Commission to the Legislature, it is necessary for the Legislature to take action to avoid the result of adopting valuation as the rate base."

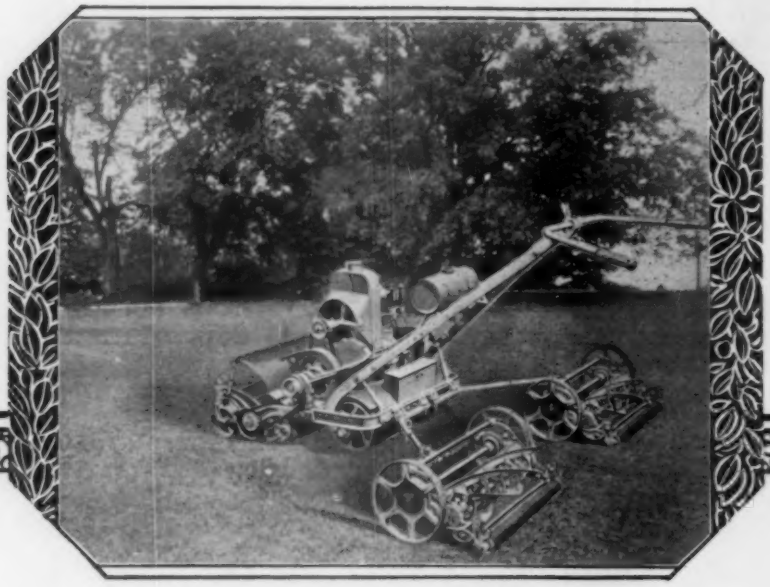
The New York Telegram comments editorially, on June 13,

"What the Massachusetts Utilities Department has done is of tremendous importance. It has said to the U. S. Supreme Court, in effect, that when the high court makes rules to govern public utility rates which the Department thinks are unfair to Massachusetts consumers, it will not follow them, . . . perhaps on the theory that the Supreme Court will come to see that it blundered in the Indianapolis water case and reverse its ruling. Such a chance will be afforded in a pending case involving railroad rates throughout the country.*

"In the meantime the Massachusetts Department has made a move which may have enormous political and economic consequences."

* See THE AMERICAN CITY, March, 1927, p. 376.

* See THE AMERICAN CITY, July, 1927, p. 40.



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Pictured below: Biltmore Hand Mower. Pushes easily; cuts quickly and evenly. Timken Tapered Roller Bearings; enclosed gears are run in oil; five keen blades of hardened crucible steel.

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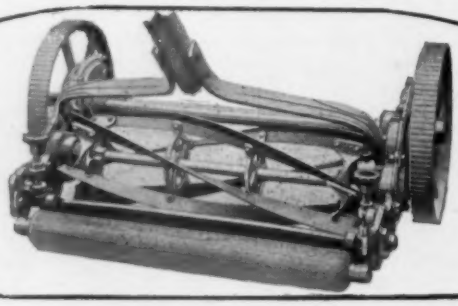

Yes—we should like you to mention THE AMERICAN CITY.

Municipal Accounting and Finance

Conducted by Francis Oakey, C. P. A.

Member of the Firm of Searle, Oakey & Miller, New York

Safeguarding the Collection of Taxes

IN the management of a city's finances two closely coordinated programs must be formulated. One is the program of expenditure; the other the program of financing. The latter program consists of two parts, the first relating to the raising of revenue, the second to borrowing.

The formulation of these programs and their coordination into a balanced budget require a high degree of judgment and experience and particularly an intimate knowledge of service requirements. But the success of a financial program lies chiefly in the manner of its execution. A city is better off with a poorly prepared budget carried out under strong control than with a well-prepared budget weakly executed.

Why tax collectors should be appointed and not elected

Why municipal taxes are peculiarly well adapted to an effective accounting control

How a city can be sure that amounts of taxes collected have not been stolen, and the record of such cash receipts omitted

What the several simple processes are which result in an effective audit

These and other important questions are discussed in the present article, which is the fourteenth monthly installment of the Department of Municipal Accounting and Finance which Mr. Oakey is conducting for the benefit of The American City's readers.

Many weak spots can be found in the execution of municipal budgets. Failure to establish a strong central control over expenditures is probably the most common deficiency; at least, it is the most widely known, since the abuses which result from it are given publicity and are favorite topics of political parties not in power. A weakness which frequently is not generally known, although of the greatest importance, is laxity in the collection of taxes. This weakness begins with the delegation of the collecting power, continues through defective methods of accounting and laxity in the processes of collection.

The Delegation of the Collecting Power

In many cities the power to collect taxes is vested in a Tax Collector elected by the people. This offici l thus becomes a seeker of votes, desirous of the favor of those from whom it is his duty to collect in full the amounts of the taxes assessed and to impose interest penalties for delinquencies as provided by law. He is responsible only to the taxpayers, since he does not have to report to the chief executive. There is no higher official to support him in a just action nor to condemn him for dereliction of duty. Although the process of collecting taxes is an essential part in the execution of the financial program, he is not responsible to those whose duty it is to administer the program.

In the opinion of the writer the office of Tax Collector should not be elective. This office should be made a definite part of the organization required to administer the financial program and should be removed as far as possible from the influences which govern the vote-seeking effort. It is thought that the Tax Collector should be appointed by the chief executive.

The Duties of the Collector as Defined by Law

Generally an attempt is made to define the Tax Collector's duties by law. But these attemps often are incomplete. These laws commonly include the following kinds of provisions:

1. Whether the total tax must be paid in one amount or may be paid in parts
2. The last date or dates on which taxes may be paid without penalty
3. The rates of interest to be exacted on delinquent taxes and the dates from which such interest shall run
4. The period at the expiration of which liens shall be placed on the property of delinquent taxpayers

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5. How and at what intervals the Collector shall settle with the Treasurer
6. The amount of the Collector's bond
7. How the Collector's accounts shall be audited and settled when he retires from office

The most conspicuous deficiency in these laws is the lack of any provisions for the establishment of sound methods of accounting and auditing.

Control by Means of General Accounts

Taxes are the chief source of municipal revenue, sometimes amounting to 85 per cent of the total revenues. And yet it is seldom that they are properly safeguarded by an effective accounting system.

In all accounting processes the first requisite is a control by means of which the accuracy and completeness of detailed records may be established and maintained. It so happens that municipal taxes are peculiarly well adapted to an effective accounting control. In the first place, with the exception of certain items of comparatively minor importance, taxes are the only forms of municipal revenue which accrue prior to collection. Secondly, the amounts of taxes are determined by officials who are independent of the Collector, and these amounts are definitized in certified lists. These features facilitate the setting-up of a control over taxes the moment they accrue; that is, as soon as they are assessed. By means of this control supported by the certified tax list, the Collector is charged with the amounts of the taxes of each year to be collected.

As soon as the tax list is certified by the Board of Assessors it should be delivered to the City Auditor or City Comptroller and the total entered in a controlling account entitled "Taxes Accrued Not Collected for the Year ——" in the general ledger kept in his office. There should be a controlling account for each year's taxes, showing the amount for which the Collector is responsible. The lists should then be transmitted to the Collector. The Collector should report to the Auditor or Comptroller the amount of each year's taxes collected each day to be credited to the controlling accounts of Taxes Accrued Not Collected. At the same time the amounts thus collected should be charged to an account entitled "Cash in the Hands of the Tax Collector," to be cleared by the amounts of cash transferred to or deposited to the credit of the Treasurer. On the certified list the Collector should mark off items of taxes as paid, so that if a list of the open items were accurately taken, the totals would agree with the respective controlling accounts in the general ledger of the Auditor. Also, if the cash in the possession of the Collector were counted, the aggregate should agree with the controlling account therefor in the ledger of the Auditor.

Control by Means of Financial Stationery

The question naturally arises: how can the city be sure that amounts of taxes received have not been stolen and record of such cash receipts omitted. There is no way except by a complete audit, and even then a sound system in the Collector's office is essential if the audit is to be effective.

One of the requisites of such system consists of a control over tax notices and receipts by the use of financial stationery. The term "financial stationery" is used to describe forms which are delivered as evidence of money received, such as license blanks, tax bills, etc., and are numbered serially so that they may be accounted for. The supply of such forms is centrally controlled, the inclusive numbers issued to each collecting officer being charged to him. Later, the accountability of the officer is established by ascertaining that he has recorded and reported receipts of cash equivalent to the total face value of the forms charged to him but not found in his possession.

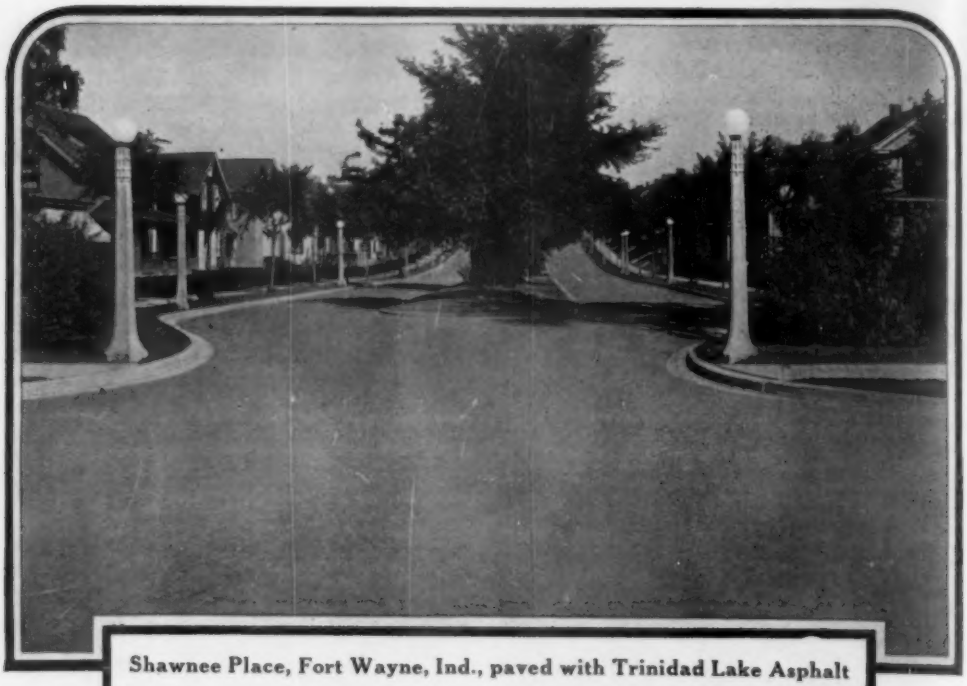
In applying this principle to the collection of taxes, the tax bill becomes "financial stationery." Each bill consists of two parts, one being the notice or demand which is sent to the taxpayer, and the other being the receipt which is held by the Collector and delivered to the taxpayer upon payment of the tax. Under this system the City Auditor or City Comptroller prepares the tax bills from the certified lists and delivers them to the Collector with the lists, making a record thereof showing the inclusive numbers of the bills so issued for which the Collector must account.

The Collector's Records

The Tax Collector is purely a receiving officer; he should disburse no money—not even refunds, which should be paid by the Treasurer upon warrants of the Auditor or Comptroller. The Collector must keep at least two records, namely:

A record of taxes paid and unpaid;
A daily proof of taxes received and deposits with the Treasurer

The most common method of recording taxes paid and showing those which remain unpaid is to stamp each item on the certified list with the date when it is paid. If this work is accurately done, the open items represent unpaid



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taxes. This method produces a complete record which can be proved to the control, but it has a serious defect, namely, it does not show the status of each taxpayer's account, which can be ascertained only by searching through the list of each year and assembling the unpaid taxes against each taxpayer. A better method, although one which involves considerable additional work, is to maintain a card record for each taxpayer to which to debit all taxes assessed and credit all taxes paid, thus showing in one place a complete account with each taxpayer. This record is necessary in following up delinquent taxes and placing liens.

A detailed register of cash receipts is not necessary, provided the Collector retains the tax notices as evidence of the amounts received and lists these notices by years at the close of each day for entry in his cash proof. He must also enter in this proof all transfers of cash to the Treasurer. A copy of this proof is sent to the Auditor each day as a basis of entry in the controlling accounts.

Auditing as a Safeguard

Although the Tax Collector's responsibility is greater than that of any other municipal officer except the Treasurer, it is seldom that his accounts are audited effectively. Very often they are not audited at all until he retires from office. This is probably due to the fact that a thorough audit of a Tax Collector's office is a laborious job, which the City Auditor is not equipped to undertake. Again, it is difficult to make a proper audit if the accounting system relating to taxes is deficient in the essential requirements of control. Collector's records should be audited frequently, at least once each year. If the principles of accounting which have been described are in use, an effective audit consists of several simple processes, namely:

1. Ascertaining that the tax lists have been duly certified, that the footings are correct, and that the rate applied to the total assessed valuations produces approximately the total assessed taxes
2. Ascertaining that the totals of the tax lists have been correctly posted to the controlling accounts
3. Ascertaining that the cash has been proved each day and that the totals of the proof have been correctly posted to the controlling accounts
4. Confirming the amounts recorded by the Collector as transferred to the Treasurer, by reference to the Treasurer's books
5. Testing the accuracy of the detailed postings of payments to the tax lists or to the taxpayer's accounts
6. Testing the accuracy of the amounts of interest penalties imposed
7. Testing the accuracy of the totals of receipts recorded on the daily proofs by listing the retained notices on file

The foregoing tests may be begun on a limited basis, but if errors or irregularities are found, should be increased accordingly.

The Two Safeguards over the Collection of Taxes

There are two safeguards which should be established over the collection of taxes: one is an efficient accounting control and detailed record; the other is an efficient audit. Both are essential and interdependent. An efficient system of accounting control and record is not a complete safeguard unless accompanied by an efficient audit. A highly effective audit cannot be made unless the system is efficient.

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Purchasing Systems of New York State Cities

A RECENT special report on "Purchasing Systems of Cities," issued by the New York State Bureau of Municipal Information, shows a surprising variety of charter requirements and local customs in the purchase of municipal supplies.

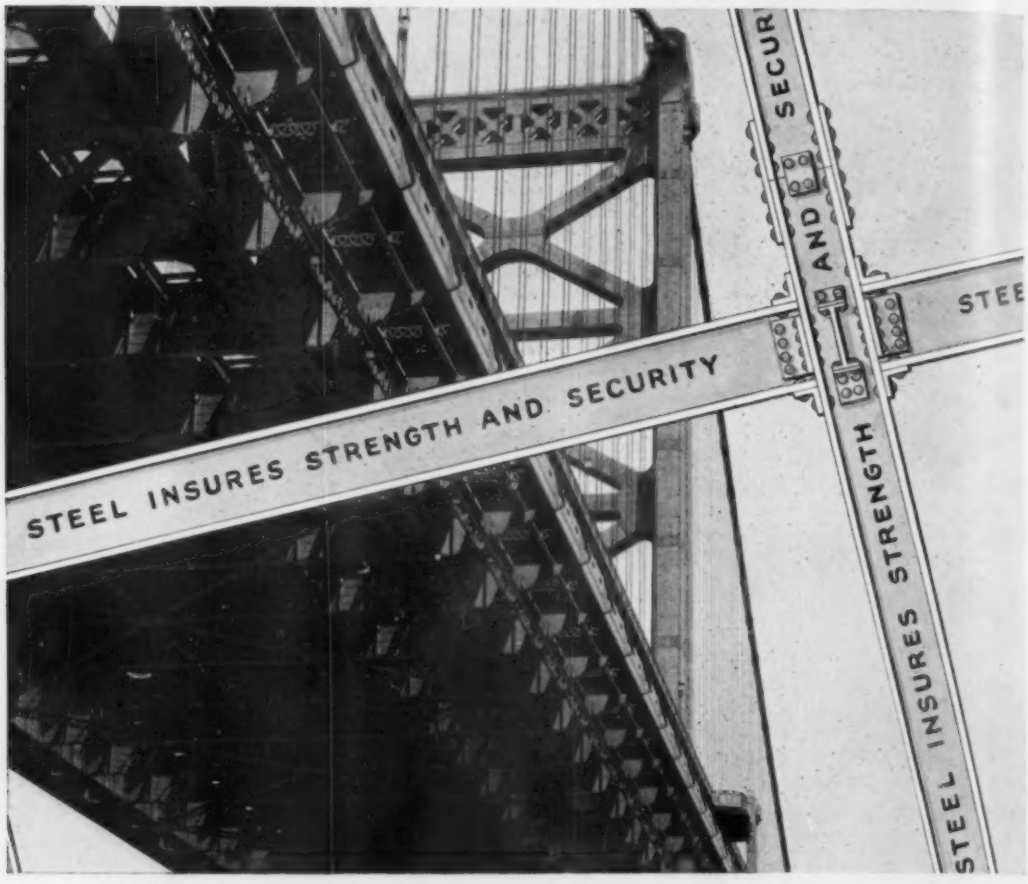
The following information was requested by the Bureau:

1. Is there any limitation on the amount your city officials, bureaus, and departments can spend for supplies which are purchased in the open market and not by competitive bidding? If so, what is the amount?
2. Are you required to make out a requisition and obtain an order before you can purchase supplies, except by competitive bidding? If so, by whom is the order issued?
3. By whom are supplies purchased in open market?
4. When supplies have to be purchased by competitive bidding, what body of your city awards the contract?
5. Does your city require that before an order can be issued for purchase of supplies, a certification must be obtained from the fiscal officer that funds are available to pay for such supplies?
6. Please give any of the information about your system of purchasing not covered by the above questions.

Forty-one cities answered question number 1. Three of these place no limits on open market purchasing; twenty-one have a $500 limit; several have conditional limits of different sorts; while in others definite limits range from $50 to $1,000.

Twenty-five of the thirty-eight cities listed under question 2 purchase on requisition only. Orders are issued by purchasing agent, Board of Contract and Supply, department heads, department heads with mayor's approval only, city clerk, common council, or other local officials or departments. Seven cities require no requisition.

Question 3, as to who purchases supplies in open market, is answered by thirty-five cities, a preponderance of which name purchasing agent or department heads. Of the thirty-eight replies under question 4, regarding the official body that awards the contract when purchasing is by competitive bidding, fourteen mention the common council, or city council. Others give the purchasing agent, Commissioner of Accounts, Board of Contract, or other



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84

officials or department heads.

Fifteen cities are shown under question 5 to require no certification from the fiscal officer that money is available to pay for purchases. Eight of the ten others represented require unqualified certification, and the others, conditional.

Batavia, N. Y., is shown under question 6 as having provision for purchases by department heads, in emergency, requisition to be put through later, though in theory a requisition accompanies each purchase.

In Dunkirk, the offices of city clerk and fiscal officer are combined and the budget balance may be consulted readily before any contemplated purchase. Ithaca reports:

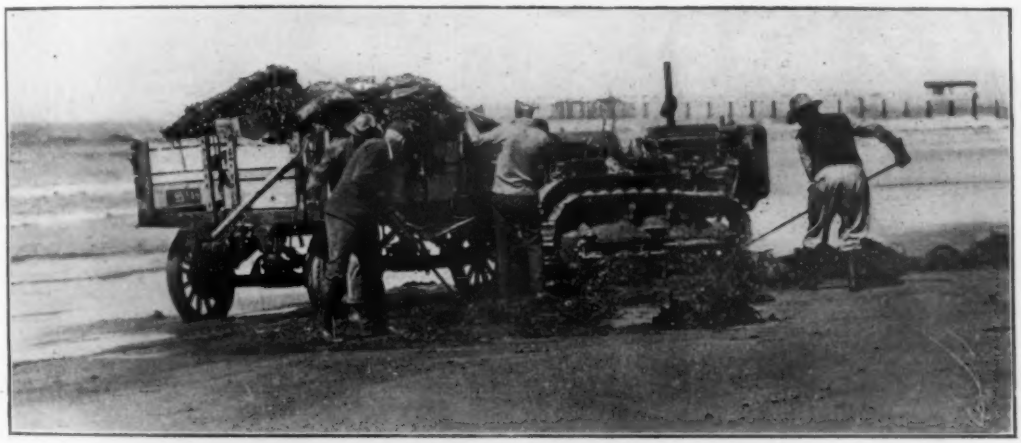
"The detailed budget establishes the basis of control, and any proposed purchase of consequence not provided for must first be approved by the common council, either by special appropriation or authorization of the transfer of estimated surplus from one item in the budget to meet the special requisition. Effort is made to avoid unnecessary red tape in the business machinery and there appears little difficulty in securing the cooperation of heads of departments in maintaining control."

In North Tonawanda an attempt to adopt a central purchasing plan in coordination with a new budget control system is reported as having been made, but proved unsuccessful. Orders at present must have the approval of department heads.

Beach Cleaning with Tractors

WITH seven miles of beach used winter and summer, in Long Beach, Calif., the problem of keeping it free from debris confronted city officials.

Refuse presented the worst problem, and oil from ballast tanks of steamers and from nearby oil wells had to be contended with. The flood-control channel dumping debris into the ocean, the drift from the ships passing the coast, and the kelp or seaweed, all caused no end of annoyance to bathers.



KEEPING LONG BEACH FREE FROM OCEAN DEBRIS

The Sanitary Department of Long Beach was assigned the task of keeping the beach clean. With two trailers, pulled by a Caterpillar tractor, debris is gathered from the sand and hauled to the edge of the beach. A 3½-ton flat rack truck hauls the debris from the beach to the dumping-ground. The truck is also used on the hard sand near the water, while the tractor works in the soft sand.

"Without the tractor," says the foreman, "our work of keeping the beach clean would be an impossible job. It is constantly in use, twelve hours a day and seven days a week. On an average of fifteen gallons of gasoline a day, it accomplishes more effectively, and cheaper, the same labor that would be done by at least eight or ten horses."

A large force of men is divided into four crews, working in two eight-hour shifts. Two crews start at the center of the beach, this being the most frequented, and work in opposite directions to the ends of the beach and return. The men work eight hours a day, and between the hours of 10 A. M. and 2 P. M. all men are on the job, both shifts working at the time most needed.

Rake men working in advance of the trailer and tractor, rake the debris into piles, which are later loaded into the trailers and hauled to the edge of the beach. Here the trailers are attached to the truck and they are then drawn to the city dump.

Methods used in extracting the oil from the sand leave the beach absolutely free from the thick, black substance so disagreeable to the bathers. A road-drag 20 feet wide, drawn by the tractor, drags the oil under the sand, which, after the following tide, disintegrates and disappears by reason of the chemical process that takes place when salt water covers the sand.

The foreman patrols by auto the seven miles of beach and shifts the men about to meet conditions. His mileage runs from 60 to 140 miles a day.

Spiles and discarded wharf timber coming ashore are dangerous. Recently a piece of timber 40 feet long was found at the water's edge, and with the aid of two skids, chain and the tractor, two men were able to load it into the trailers in ten minutes. These logs lie where the high tide has dropped them and must be handled between tides, as they are one of the grave dangers to bathers.

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A brief note will bring you a complete description of Tarvia Re-tread.
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The City's Legal Rights and Duties

Conducted by A. L. H. Street, Attorney at Law

Court Upholds Municipal Operation of Tourist Camps

"The original concept of a city park has by usage, during the last twenty years, broadened to include the maintenance of a tourist camp," said the Kansas Supreme Court the other day in the case of State vs. Dodge City, 255 Pacific Reporter, 387. The opinion adds:

"It is perfectly apparent that the city was not operating the tourist camp for revenue purposes. . . . The matter is now of little consequence, because the recent Legislature enacted a statute providing that:

"'The governing body of any city shall have the power, and may, in its discretion, maintain a municipal or city tourist camp, providing such buildings, facilities and conveniences and making such charge therefore as such governing body may determine. If deemed expedient and proper, such tourist camp may be maintained in any park of the city. Cities are authorized to acquire by lease or purchase such lands as may be necessary upon which to establish and maintain tourist camps.' . . .

"The act provides that: 'The receipts from the operation of tourist camps shall be used to defray the expenses of such camps, and any surplus therefrom shall be paid into the general fund or park fund of the city, as the governing body may direct.'"

But it will be remembered that an appellate court in Missouri ruled a year or so ago that maintenance of a camp for the bestowal of hospitality upon motoring tourists was not such municipal purpose as to justify the expenditure of public funds.

Cities Are Not Ordinarily Liable for Neglect to Collect Special Asssesments

In the case of Moore vs. City of Nampa, Idaho, the United States Circuit Court of Appeals, Ninth Circuit, 18 Federal Reporter, Second Series, 860, decided that the city was not liable to the holder of sewer bonds for neglect of the city's officials to collect special assessments from which the bonds were payable. Referring to the city officers, the Court said:

"In all the transactions here involved they were but instrumentalities for originating, carrying out, and paying for the expense of local improvements, the cost of which was assessable against the property benefited thereby. In this fact is an insuperable obstacle to the right of the plaintiff to recover herein, for the officers of the city were not acting on its behalf, and they had no authority to bind it by any act or failure to act in the premises. It is well settled that municipal corporations possess no inherent power to levy assessments for local improvements, and that their only authority to do so is to be found in legislative acts. 25 R.C.L. 88. And it is uniformly held that in collecting money to pay for special improvements, where there is no liability against the corporation, the corporation authorities do not act as its representatives, but as special agents or instrumentalities to accomplish a public end."

Court Defines the Test of an Abatable Nuisance

The right of nearby property owners to complain against the operation of a city's sewage disposal plant was passed upon by the Arizona Supreme Court in the case of MacDonald vs. Perry, 255 Pacific Reporter, 494. At the same time, the Court had occasion to declare that an injunction will not issue against the operation of a lawful activity merely because it causes some minor annoyance to others; in such case an award of damages will be made. It was further decided that before injunction issues, reasonable opportunity should be afforded to correct the practices complained of.

On the subject of nuisances generally, the Court observed:

"In determining the question as to whether a lawful occupation is so conducted as to constitute a nuisance as a matter of fact, the locality and surroundings are of the first importance. . . . A business which is not per se a public nuisance may become such by being carried on at a place where the health, comfort, or convenience of a populous neighborhood is affected. On the other hand, in certain places not everything that causes discomfort, inconvenience, and annoyance, or even which may perhaps lessen the value of surrounding property, will be condemned or abated as a nuisance. . . . What might amount to a serious nuisance in one locality by reason of the density of the population, or character of the neighborhood affected, may in another place and under different surroundings be deemed proper and unobjectionable. What amount of annoyance or inconvenience caused by others in the lawful use of their property will constitute a nuisance depends upon varying circumstances and cannot be precisely defined. This question has come before the courts frequently and the rule is well established."

Protruding Tree May Constitute Defect in Highway for Which City is Liable

That a tree may protrude in the traveled portion of a highway under such circumstances as to render a municipality liable for resulting injury to a traveler was recognized by the Connecticut Supreme Court of Errors in the late case of Riccio vs. Town of Plainville, 136 Atlantic Reporter, 872. But plaintiff was denied the right to recover for such an accident, because of failure to show compliance with the Connecticut statutes requiring written notice of the accident to be given the municipality before the bringing of the suit.

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Sewer Not Required to Follow Highways—Corner Lots May Be Assessed for Appropriate Frontage on Both Streets

The right of a city to construct sewers across private property under appropriate conditions was upheld by the Kentucky Court of Appeals in the case of City of Jackson vs. Riffle, 294 Southwestern Reporter, 142. The decision rests somewhat upon a statute permitting construction along "other rights of way," as well as streets, etc.

The same opinion upholds the levy of sewer assessments against corner lots by counting the shortest frontage on any street or alley, and all frontage in excess of 100 feet on one other street or alley.

The reasoning of the Court is as follows:

"If it is impracticable, as appears from the record, to construct all the lines of sewer along or under streets, alleys, or highways, no reason is perceived why the council may not construct such sewers along such other rights of way as it may acquire by agreement or condemnations in a practical and common-sense way. The plan is fair and equitable. The owner of property which would be inaccessible to a sewer if laid in the street or alley on which it abuts, pays on his frontage just as all other property owners do, and at the same time is furnished a sewer connection which he could not otherwise obtain.

"There is the further question as to whether the method of assessing corner or other lots abutting on more than one street or alley is valid. Sewer systems are constructed, not only for the purpose of giving each property owner access thereto, but for the further purpose of promoting the health of the entire community. The question of plan and benefits must of necessity be left largely to the discretion of the council. A corner lot having access to a sewer on one side is not benefited by a sewer on the other side until the sewer on the other side becomes more accessible to that portion of the property which the owner may desire to improve. Since the plan applies to all corner lots similarly situated, and they pay, as all other lots do, according to frontage, and in proportion to the benefits received, and perfect equality is not possible, we are not prepared to say that the method of assessment is so unfair or unreasonable as to make out a case of unjust discrimination.

"There can be no doubt of the power of a city of the fourth class to divide the city into sewer districts, and particularly so where there appears, as in this case, such a substantial difference in the topography of the various sections of the city."

Grade Must Be Established Before Street or Alley Paving Can Be Legally Assessed

Because an alley was paved by the city before the grade was legally established, the Iowa Supreme Court decided that a paving assessment was illegal, in the case of Walter vs. Ida Grove, 213 North Western Reporter, 935. Citing decisions of the California, Kentucky and Minnesota courts in support of the conclusion reached, the Iowa Court said:

"A permanent grade may be established or changed only by ordinance. . . . The municipality cannot acquire a right to a grade by mere implication from the establishment of grades in connecting or neighboring thoroughfares. . . . Paving is a permanent improvement. If the property owner pays for it without a grade being established and a different grade should later be established, he would be without remedy to recover damage, for to recover damage he must have relied upon a formerly established grade. Ayer vs. Perry, 193 Iowa, 181, 186 N.W. 840. It may be therefore in the absence of an established grade that benefits cannot be definitely measured. It is generally held that an assessment cannot be made if a grade has not been legally established."

City Not Liable for False Arrests Caused by Its Officials

In the case of McCarter vs. City of Florence, 112 Southern Reporter, 335, the Alabama Supreme Court said:

"It seems to be well settled by the decisions of this and most of the other states that a municipality is not responsible for the acts of its officers, agents, or servants in making false arrests or for instituting a malicious prosecution. . . . It has been held that a town was not liable in an action for false imprisonment, either by reason of having adopted an illegal ordinance or because the mayor issued a warrant of arrest under the ordinance, or because the marshal made the arrest. . . .

"We think that section 2029 of the Code of 1923, if making any change in the law as it existed at the time of its enactment, was intended to lessen or limit liability. It certainly does not fix or fasten liability on the city for the false imprisonment or malicious prosecution on the part of its officers or agents."

Cities May Require Installation of Water and Light Meters

The right of a city operating a water or light plant to require consumers to install meters and make deposits to secure the payment of service charges was recognized by the Georgia Supreme Court in the late case of Young vs. City of Moultrie, 137 South Eastern Reporter, 257. This installation of meters is treated as being of mutual advantage to avoid waste and false measurement.

Resolution Sufficiently Describing Paving Material

Answering an objection that a paving resolution was void for failure to comply with a statutory requirement that "the general character of the materials to be used" be specified, the Alabama Supreme Court said in the case of Stovall vs. City of Jasper, 110 Southern Reporter, 317:

"The resolution for the paving of Nineteenth Street provided that the street should 'be paved with sheet asphalt, asphaltic concrete, or bitulithic pavement.' The materials thus enumerated are of the same general character, within the meaning of the statute, all being based upon the cohesive and insoluble qualities of bitumen or asphalt, which is a bituminous substance.

"Appellant relies upon Garner vs. Anniston, 178 Ala. 430, 59 So. 654, decided in 1912. In that case, the resolution under scrutiny undertook to comply with the statute by providing that 'the street should be paved with bitulithic pavement, vitrified brick, or other approved material.' It is clear, we think, that the last clause of the quoted provision, apart from anything else, was enough to render the resolution, upon which the ordinance depended, so indefinite and uncertain as to deprive it of all reasonable support in the statute."

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Zoning Notes

Prepared by Frank B. Williams

Author of "The Law of City Planning and Zoning"

From data collected by the Zoning Committee of New York (233 Broadway)

Recent Zoning Statutes and Ordinances

ARIZONA.—Statute, 1927.
CRYSTAL LAKE, ILL.—Ordinance, April, 1927.
LOS ANGELES, CALIF.—Ordinance, May 2, 1927.
PONCA CITY, OKLA.—Ordinance, May, 1927.
RICHMOND, VA.—Ordinance, April 13, 1927.
SALT LAKE CITY, UTAH.—Ordinance, May 26, 1927.
WISCONSIN.—Statute, Counties, 1927.

Step-by-Step Zoning in the Unincorporated Territory of Los Angeles County

In various parts of the Los Angeles ordinance, above mentioned, the following provisions occur:

"That the portions of said unincorporated territory hereinafter in this ordinance described are the first portions of said territory surveyed and studied for the purposes to be served by this ordinance because the necessity therefor in these particular portions of said unincorporated territory is most urgent; that the zoning of said portions of said unincorporated territory is in conformity with a general zoning scheme covering the unincorporated territory in the entire county of Los Angeles; and that as rapidly as possible, new districts will be added by ordinance until all the more densely populated portions of said unincorporated territory shall have been included within appropriate zones.

"It is hereby further declared that the progressive adoption of ordinances placing various portions of such unincorporated territory in the respective zones applicable thereto as soon as the due and careful consideration by the Regional Planning Commission of said county and by the Board of Supervisors will permit, is intended to result eventually in a comprehensive and well-considered plan of location and distribution of the various industries, businesses and population of the entire unincorporated area of the county of Los Angeles and in due relation with existing plans in the incorporated portions of said county."

These paragraphs are in effect a statement that in the zoning as it is after the passage of this ordinance only a part of the territory of the same character is regulated; and the situation is not changed, but, on the contrary, is made more obvious by the statement that the rest of the area will later be similarly restricted. This is partial zoning, with regard to the validity of which the authorities are divided. It seems to the writer that on principle such zoning cannot be upheld; for, to be reasonable and just, similar land similarly situated must at all times be treated alike.

Recent Zoning Decisions

MASSACHUSETTS.—*Siegemund v. Building Commissioner of City of Boston,* Supreme Court, May 20, 1927. Under a provision of the Boston zoning law requiring a given setback from a "street" in given districts, a building is not required to set back from a private way, such way not being a street within the meaning of that law.

NEW YORK.—*Matter of Hillsley Realty Corp. v. Vroman, Building Inspector of Village of Larchmont.* The petitioners seek to build an apartment house in a single-family resident district, contrary to the provisions of the zoning ordinance. They allege that, as the ordinance provides that apartments can be built only in the business or industrial district, which is a very small part of the total area of the village, the ordinance does not provide a sufficient portion of the village for multi-family or apartment houses.

The petitioners further contend that dwellings of the highest types are more and more tending to be in the form of apartment houses, and that the ordinance is unreasonable in forcing apartment houses into the business section of the village.

The respondents claim that these questions are within the discretion of the Board of Trustees. They also allege that the village is almost entirely residential, and that apartment houses could be justly confined to the districts as set forth in the zoning ordinance.

The Court dismissed the petition without opinion.

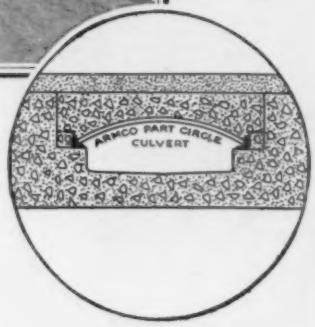
NEW YORK.—*Matter of Stillman,* Supreme Court, New York County, reported in *New York Law Journal,* June 17, 1927. Certiorari to review a determination of the Board of Standards and Appeals of New York City. The property, within a residence district, is improved with five five-story dwellings. The Board granted a variance allowing the construction on the premises of a 21-story business building. *Held,* that there were no practical difficulties, and the record failed to show any unnecessary hardship, justifying the determination of the Board. The property was acquired with knowledge of the zoning restriction. There is no suggestion of a material change in conditions. The fact that the larger building would yield a greater return is not such a hardship as justifies the variance.

Recent Zoning Literature

Newman F. Baker, whose writings on various phases of zoning are well known, has published a small but well-arranged and well-written volume called "Legal Aspects of Zoning." The book has been reviewed elsewhere in this magazine, and therefore calls for no further comment here.

An important article from *Housing Betterment* on "Zoning's Greatest Danger—Lawless Acts by Board of Appeals" is reprinted on pages 231 to 234 of this issue.

The Massachusetts Federation of Planning Boards under date of June, 1927, has issued its twenty-first bulletin, entitled "Zoning Appeals." Edward T. Hartman, Executive Secretary, makes a significant statement which is quoted in the "box" on page 231 of this issue.



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The Municipal Bond Market

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

ON January first of this year *The Bond Buyer's* Index of Municipal Bond Values (expressed in terms of net yield basis) stood at 4.13 per cent. On May first it had moved down to 3.95 per cent, indicating that municipal bond prices had reached the highest level seen since January, 1917. As this is written, the Index reads 4.05 per cent. In other words, the municipal bond market enjoyed an abrupt rise during the early months of the current year, but approximately one-half of this advance has been wiped out in the reaction which set in the latter part of May and which has affected not alone municipals, but the entire investment security market. The most notable illustration of the unfavorable action of the market is the experience of the banking syndicate which purchased from the city of New York, on May 11, $60,000,000 4 per cent bonds. Two months later, the syndicate announced a price reduction on the unsold balance of approximately $45,000,000 bonds. The reduced prices represent a loss of about $600,000, assuming the bonds are sold at a new price schedule.

Municipalities which have recently placed loans or will shortly issue bonds have no cause for complaint. They may still borrow for proper purposes, if loans are set up in proper form, on virtually the best terms available since 1917; and it is generally believed that the market will show considerable improvement in the near future as the oversupply of bonds issued in the spring months becomes better distributed among actual investors, and dealers are thus placed in a position to stock up with new issues.

The following representative list of recent municipal issues indicates the trend of interest rates:

Amount	Issue	% Rate	Term	% Yield
$ 168,000	Marblehead, Mass. ...	4	15½ Yr. Avg.	3.75
95,000	Marlboro, Mass.	4	7 Yr. Avg.	3.85
11,600	De Kalb Co., Ind. ...	4½	5¾ Yr. Avg.	4.03
1,279,000	Newburgh, N. Y.	4¼	Various	4.16
1,000,000	Tennessee	4¼	7-15 Opt.	4.19
189,000	Mamaroneck, N. Y...	4¼	21¾ Yr. Avg.	4.24
75,000	Monroe, Mich.	4¼	3-27 Yr. Ser.	4.24
75,000	Tarrytown, N. Y....	4½	10 Yr. Avg.	4.32
3,000,000	San Francisco, Calif..	5	(1-40 Yr. Ser.) (3-42 Yr. Ser.)	3.49
300,000	Birmingham, Ala. ...	4½	1-10 Yr. Ser.	4.43
800,000	Nashville, Tenn.	4½	4 Yr. Avg.	4.44
1,495,000	Birmingham, Ala. ...	4½	10½ Yr. Avg.	4.49
500,000	New Mexico	4½	1-2 Yr. Ser.	4.49
25,450	Ashtabula Co., O. ...	5	11 Yr. Avg.	4.51
200,000	Polk Co., Fla.	6	2½ Yr. Avg.	5.55
23,000	Urbana, O.	5	12 1/6 Yr. Avg.	4.56

Minnesota Village Crowns Long Record of Utility Operation with Outstanding Success

AT the annual convention of the League of Minnesota Municipalities in June, 1927, Mayor E. W. Campbell of Litchfield, Minn., a village of about 3,000 population, told of the accomplishments of his municipality in furnishing water, steam heat, and electric light and power to its citizens at moderate rates and with remarkable financial success. The story of the enterprise is given in *Minnesota Municipalities* for June. It started in 1890 with the building of a lighting plant, wihch yielded sufficient surplus income to add to its own facilities and finance the installation of a 1,000-gallon steel tank and other water-works items, a white-way system of 40-five-light ornamental posts, and an exhaust steam-heating system serving the business district and part of the residence section, besides paying the original bond issue.

"In 1920 J. C. Bang, an experienced utility superintendent, was employed to supervise the plant. One of his first acts after taking over the new position was to recommend a complete remodeling and rebuilding of the plant in order adequately to take care of the increased demands for service. In the meantime strong pressure was brought to bear on the Village Council and people of the village by private utility interests to abandon the operation of the plant. . . . A bond issue of $90,000 was proposed to finance the reconstruction and carried by an almost unanimous vote. In order not to burden the new plant too heavily, the bond issue was made payable in installments of $6,000 per year, but the net earnings of the plant during the four years since the plant was rebuilt have been more than sufficient to retire the complete bond issue. The village is just now borrowing from the electric light fund about $40,000 to finance the new sewage-treatment plant.

"Under the leadership of Mr. Bang as superintendent the services of the plant have been extended until the combined utilities now serve approximately 1,000 electric users, 500 water users, 75 heat customers, and 100 power customers. In addition, electric service is furnished to the villages of Atwater, Grove City, and Darwin."

The annual statement of the combined plant shows the book value on April 1, 1927, after deducting depreciation, to be $160,752.78. The gross earnings from electric, steam heating and water service for the preceding twelve months were $76,106.72; the current expenses, including $6,493.47 set aside to provide for annual depreciation, were $45,851.21, leaving $30,255.51, which represents nearly 19 per cent on the above value. Out of this amount were paid $3,697.50 as bond interest, $6,000.00 as the annual payment for retiring the bonds, and $5,528.36 for permanent improvement.

The rates charged are about the average for such services in similar municipalities in the state, as indicated by a study of electric rates in Minnesota made by Dr. Delos F. Wilcox in 1925, a list of Minnesota electric rates published by the League of Minnesota Municipalities in February, 1926, and lists of water-rates appearing in The Municipal Index in 1925 and subsequently. The chief lighting rate is 10 cents per kilowatt-hour, for the first 100 kw.-hrs. per month; the cooking rate is 3½ cents per kw.-hr., straight; the power rate is 8 cents per kw.-hr. for the first 100 per month and graduates down to 2 cents for all over 1,000; water is $2.25 per 1,000 cubic feet for the first 2,000 cu. ft. per month; and steam heat is 75 cents per 1,000 pounds for the first 25,000.

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AMERICANS SHOULD PRODUCE THEIR OWN RUBBER . . Harvey S. Firestone

Municipal and Civic Publications

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The Modern Development of City Government in the United Kingdom and the United States.—By Ernest F. Griffith, D.Phil. (Oxon.), Warden, University Settlement, Liverpool; Hon. Lecturer, Liverpool University; Sometime Preceptor in Economics, Princeton University. Oxford University Press, American Branch, New York. 1927. XIX + 745 pp.; 2 volumes. $14.00.

Not only has no adequate comparative historical and descriptive study of American and British cities appeared before this, but comprehensive histories of city government have been lacking for both countries. Hence this treatise has a two-fold value. The first volume comprises a historical treatment of city government in the two countries, not claimed to be exhaustive, but emphasizing the comparative features. It is divided into three periods—pre-1870, 1870 to 1900, and 1900 to 1924. Starting with a common legal basis and a social heritage much the same, each nation has developed a system essentially different from the other in structure, finance, and relation to the state; and a study of this sort is of fundamental importance, especially as the wants and needs are inherently similar for both peoples. The second volume takes up various broad aspects of city government in the two countries—its legal basis, functions, framework, finance, state relations, quality, and the part played by public opinion; a final chapter summarizes the two systems in a brief analysis and criticism, and makes recommendations. The treatise is helpfully documented and otherwise annotated and carries an extensive set of appendices. The author has done an excellent piece of work, carefully analyzed, marked by insight, and well written.

The American Year Book, 1926.—Albert Bushnell Hart, LL.D., Editor; William M. Schuyler, Associate Editor. The Macmillan Company, New York. 1927. XVII + 1178 pp. $7.50.

This is the second of the annual volumes constituting a revival of the series under the same name, in 1910 to 1919 inclusive. The publication of the last two has been made possible by the support of *The New York Times;* it is stated in the present volume that the enterprise, as a result of the experience in the preceding year, hopes to become self-sustaining. There is an advisory board of 45 representatives of national learned societies. The number of contributors to its contents is 274 as compared to 256 the previous year; some 40 more subjects are treated, partly representing further subdivision; the number of pages is 20 more than in the 1925 volume. Each of the 40 general divisions is now followed by a list of national organizations relating to the subject. As is natural with a compilation of such a range of subject matter from many sources, the treatment is irregular, varying from strict chronicle as to some topics, to philosophical discussion of others. Of special interest in the municipal fields are divisions VI, Municipal Government, and X, Public Services and Utilities, together with portions of XI, Public Finance, XII, Taxation, XXII, Justice and Maintenance of Order, XXIV, Social Problems and Conditions, XXXIII, Medical Sciences, XXXIX, Academic Education and XL, Vocational Education. It presents these subjects in a setting of the manifold aspects of current American life.

Proceedings of Ninth Texas Water Works Short School.—This school was held by the Texas section of the Southwest Water Works Association in Dallas, January 24-29, 1927. The Proceedings comprise a book of 397 pages, dividend into five sections: General; Water; Laboratory Methods and Control Studies; Sewage Disposal; and the Appendix. A large number of papers are reported under these headings. $1.00. (Apply to E. G. Eggert, Secretary, Texas Association of Sanitarians, Capitol Station, Austin, Texas, or to American Public Health Association, 370 Seventh Avenue, New York.)

The Architectural Forum—Public Buildings Reference Number—Part I.—This is the June issue, and contains articles on capitol buildings, court-houses, city and town halls, fire halls, etc., and many handsome illustrations. The September number will constitute Part II, and will take up other classes of public buildings. 60 cents. (Apply to Rogers & Manson Co., 383 Madison Avenue, New York.)

The Legal Aspects of Zoning.—By Newman F. Baker, A.M., J.S.D., of the Missouri Bar. The University of Chicago Press. 1927. XII + 182 pp. $2.50. Reviewed by Frank B. Williams.

Mr. Baker's book, nominally confined to the legal aspects of zoning, is in fact an admirable treatise on the law of several of the most important aspects of the law of city planning, including esthetics and the billboard—for, as he shows, billboard regulation is by no means confined to the promotion of beauty; zoning in its various phases, and metropolitan planning. Several articles of great value, by Mr. Bassett, Mr. Bettman and others, have been written on parts of this subject, which recent events have so much enlarged; but Mr. Baker's book covers more of the field, and treats it in the light of the most recent legislation and judical decision. The analysis of these laws and ordinances and the cases passing upon them is perhaps the most timely feature of this small book. Mr. Baker also realizes the importance of making his work readable and has done so. To the writer this book is the most important and the most useful recent contribution to the subject.

The Law of Housing and Town Planning in Scotland, 1919-1925.—By W. E. Whyte, O.B.E., and W. Boyd Berry, M.A., LL.B. William Hodge & Co., Ltd., Edinburgh. 1926. XXV + 387 pp. 25 shillings.

In 1919 Mr. Whyte collaborated with T. M. Cooper in preparing the first edition of this book. The special timeliness of the work at that time was brought about by the passage of the Housing and Town Planning, etc. (Scotland), Act of 1919. The present (second) edition has been brought out as a result of the enactment in 1925 of acts consolidating the housing and the town planning statutes of Scotand. It codifies the legislation of those two years and of the interval between, with notes and references to cases throughout. An appendix contains a selection of circulars, memoranda, orders, regulations, etc., issued by the Scottish Board of Health, and also certain of the earlier statutes not covered by the text. There is an index of 57 pages. Mr. Whyte is also the author of a 36-page pamphlet entitled "Town Planning in Scotland," describing the objects and scope of town planning, and the procedure to be followed in preparing town planning schemes in Scotland. It is issued by the above publishers, for one shilling.

The Eye-Bar Cable Suspension Bridge at Florianopolis, Brazil.—A paper by D. B. Steinman, of Robinson & Steinman, consulting engineers, 25 Church Street, New York, and William G. Grove, assistant engineer, American Bridge Co., New York, reprinted from the *Proceedings* of the American Society of Civil Engineers for May. It describes the design and construction of the longest span bridge in South America and the longest eye-bar suspension bridge in the world. 77 pp. (Apply to the authors.)

Twelfth Annual Report of the Bureau of Sewage Disposal, Schenectady, N. Y.—A 17-page pamphlet covering the operation, maintenance, and recommendations regarding the sewage treatment and pumping plants of the city, researches and investigations, etc. (Apply to the Bureau.)

A Year in Review.—The twelfth annual report of the National Committee for the Prevention of Blindness, dated December, 1926. It is an illustrated review of the activities of the Committee among babies and children, and Indians subject to trachoma; in industry; and in the form of publications and lecture work. 32 pp. (Apply to the Committee, 370 Seventh Avenue, New York.)

Annual Report, Hydro-Electric Power Commission of Ontario.—A 512-page paper-covered volume covering the year ended on October 31, 1926. It contains a very large amount of statistics and other information, with many illustrations, under the headings of Legal Proceedings, Operation of the Systems, Municipal Work, Hydraulic and Electrical Engineering and Construction, Transmission Systems, Laboratories, Electric Railways, Financial Statements of the Commission, and Municipal Accounts. (Apply to the Commission, 190 University Avenue, Toronto, Ont.)

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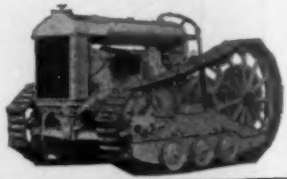

Chicago Civic Agencies.—Prepared and published jointly by the Public Affairs Committee of the Union League Club of Chicago and the Committee on Local Community Research of the University of Chicago. University of Chicago Press. 1927. VIII + 315 pp. $2.50.

Finding no comprehensive list of Chicago civic organizations available, and believing that such a list would be a valuable contribution to the future civic welfare of the city, the two committees mentioned above decided to prepare one. Such a directory, comprising 148 pages and listing 526 organizations, is the chief content of the book at hand. It is preceded by a summary and analysis, touching upon such subjects as officers, committees, civic objectives, specific projects undertaken (including 377 separate titles), membership, publications and forms of cooperation. A general federation of agencies is recommended. These topics and others are treated more fully in the pages following the directory. Even after taking account of overlapping, it is estimated that over a million persons are included in these organizations—the one having by far the largest membership being the Chicago Federation of Labor, with 420,000 members. One striking feature is the large number of neighborhood business men's and improvement associations or clubs, there being some 74 local organizations of business men, partaking of the nature of chambers of commerce, and 95 neighborhood improvement organizations. The book constitutes an illuminating and valuable study.

Standards Yearbook, 1927.—Compiled by the National Bureau of Standards, George K. Burgess, Director. Bureau of Standards Miscellaneous Publication No. 77. Government Printing Office, Washington, D. C. 1927. VI + 392 pp. 16 pp. of illustrations. $1.00.

This is a new annual, which is planned to be a regular publication of the Bureau of Standards hereafter. It is devoted to the progress of the standardization movement and its present status. It contains outlines of the activities and accomplishments not only of the Bureau, but of other governmental agencies—federal, state and municipal—and of the American societies and associations concerned with standardization to a large extent. Four non-governmental general standardizing agencies and 209 technical societies and trade associations are listed, with description of their standardizing activities, in addition to numerous federal departments, bureaus, etc., and 91 state agencies. Municipal purchasing and standardizing agencies are treated very briefly, in a manner not claimed to be exhaustive. A section of 23 pages is descriptive of the fundamental and working standards of the United States Government. The book would be still more valuable with a complete index to the great variety of objects of standardization activity on the part of the many agencies.

The Department of Public Welfare (Detroit).—Eleven pages of *Community Fund News* of Metropolitan Detroit, for June, devoted to a description of the history, organization and functions of the department in question. (Apply to Detroit Community Fund, 51 W. Warren Avenue, Detroit, Mich.)

The Municipal Research Bulletin (Buffalo).—This is a new publication, by the Buffalo Municipal Research Bureau, and will appear from time to time as its official organ. The first issue, dated June, 1927, takes up briefly the city's budget and the proposed new charter. (Apply to the Bureau, 507 White Building, Buffalo, N. Y.)

German Cities.—Five articles in *Public Management* for June: "The Organization of Administration in German Cities," by Oberburgermeister Dr. Weiss, Ludwigshafen, Germany; "Powers and Duties of the Burgomaster," by A. D. Salomon, Business Manager, Silesian Congress of Municipalities; "The Proposed National Municipal Code of Germany," by B. W. Maxwell, Professor of European History and Citizenship, Washburn College, Topeka, Kans.; "The German Municipal Association," by Erwin Stein, General Secretary of the Association for Municipal Management and Politics, Berlin, Germany; and "The Professional Associations of German Communal Officials," by D. C. Munkel, Business Manager, Professional Union of Communal Officials of Germany. $1.00. (Apply to *Public Management*, Fraser Hall, Lawrence, Kans.)

Public Building Number, *Kansas Municipalities*.—The June number of this publication, containing an article on "The Grouping of Public Buildings," by Harold D. Smith, and articles descriptive of various public buildings in the following cities in Kansas: Chanute, Leavenworth, Abilene, Kansas City, Arkansas City, Winfield, and Chapman. 25 cents. (Apply to *Kansas Municipalities*, Fraser Hall, Lawrence, Kans.)

Preventive Medicine and Hygiene.—By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard Medical School, and others. D. Appleton and Co., New York. 1927. XXV + 1,458 pp. $10.00.

This standard book of reference for health officers and others is now in its fifth edition. Five years have elapsed since the last previous revision. Much new material has been added, including a chapter on Statistical Methods, by Carl R. Doering, and various other practical points in public health administration; many subjects have been largely rewritten, among them being Sewage, and Refuse Disposal, by Prof. Gordon M. Fair, whose chapters on these subjects are based upon material prepared by the late Professor Whipple for previous editions. The section on Mental Hygiene, by Dr. Abraham Myerson, is entirely new. Other contributed chapters are on Vital Statistics, by John W. Trask; and Conservation of Vision, by Dr. J. Herbert Waite. The section on Water, consisting of five chapters, is, like certain others of the subjects treated, of interest to city engineers as well as health officers. The book has 158 illustrations and an extensive index. A considerable amount of material occurring in the earlier editions has been left out, to provide room for what has been added and to improve the nature of the volume as an up-to-date reference work for practical administrators.

Manual of Municipal Accounting.—By Lloyd Morey, A.B., C.P.A.(Ill.), Professor of Accounting and Comptroller, University of Illinois; Statistician, Illinois Municipal League. John Wiley & Sons, Inc., New York. 1927. IX + 187 pp. $3.00.

Starting from the thesis that thoroughness rather than simplicity is required in the keeping of municipal accounts, and that accounting officers able to handle an adequate system should be secured, rather than that thoroughness should be sacrificed because of incompetent public servants, this book aims to be a practical guide in municipal accounting matters, for administrative officials and others concerned in installing municipal systems. The budget, the general books, the handling of receipts, expenditures, and funds; records, reports, forms, and accounts in general and in particular are gone into. The appendix includes a municipal appropriation ordinance, a balance sheet, and a bibliography.

Instructions for Municipal Accounting in Local Improvements and Special Assessments.—Publication No. 18 of the League of Minnesota Municipalities. It is by J. O. Cederberg, for a number of years associated with the Public Examiner, State Capitol, St. Paul, in advising cities and villages in installing books of account. 16 pp. 50 cents. (Apply to the League, University Library, Minneapolis, Minn.)

A Proposed Traffic Ordinance for Municipalities in Minnesota.—Publication No. 19 of the League of Minnesota Municipalities. The proposed ordinance covers 15 pages. It was distributed at the meeting in Detroit on July 6, mentioned elsewhere in this issue, of a national committee on traffic ordinances, and will be studied by the latter in conjunction with other ordinances. 25 cents. (Apply to the League, University Library, Minneapolis, Minn.)

Municipal Insurance.—A 62-page booklet, Bulletin No. 63 of the Municipal Reference Bureau, University of Kansas, by Orin F. Nolting, Secretary to the Bureau. It is a study of the practice of cities in insuring their property and liability risks, and is published jointly by the Bureau, the International City Managers' Association, and the League of Kansas Municipalities. May 1, 1927. $1.00 each, or 3 copies for $2.50, postpaid. (Apply to the Bureau, Lawrence, Kans.)

The Improvement of Waterfrontage by the Creation of Parks, Bathing Beaches, and Recreation Piers.—A double article in the June number of *World Ports*, Part I being on "The River Front and Lake Shore Development at New Orleans," by Marcel Garsaud, General Manager, Board of Commissioners of the Port of New Orleans, and Part II on "Establishing a New Shore Line Along a Portion of the Waterfront of Chicago," by Linn White, Chief Engineer of the South Park Commissioners, Chicago. 51 pages, with discussion. 50 cents. (Apply to Tiley S. McCheaney, 307 Wells Fargo Building, New Orleans, La.)

Epidemiology as Applied to Local Health Departments.—A paper by Dr. W. H. Newcomb, Health Officer, Jacksonville, Ill., read before the second annual meeting of the Conference of Illinois Health Officers, and printed in *Illinois Health News* for June. 6 pp. (Apply to State Department of Public Health, Springfield, Ill.)

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Public School **Finance.**—By Arthur B. Moehlman, Professor of Administration and Supervision, School of Education, University of Michigan. Rand McNally & Co., Chicago, Ill. 1927. XVIII + 508 pp. $3.00.

This is "a discussion of the general principles underlying the organization and administration of the finance activity in public education, together with a practical technique." It is particularly significant because of the continually expanding scope of, and expenditures for, education, in physical plant, curriculum and personnel. Finance policies, theories and methods as to educational costs and accounts, salaries, budgets, finance control, tax programs, and public information are discussed. Many organization charts and other diagrams are shown.

An Outline of Careers.—Edited by Edward L. Bernays, Public Relations Counsel. George H. Doran Co., New York. 1927. 431 pp. $5.00.

This is a compilation of 38 contributions upon various occupations by people prominently connected with them, and is intended as a guide to aspiring youth. Most of the careers thus outlined are largely professional in nature. Scientific aspects of vocational guidance are not evident. Of special interest in the municipal field is the chapter on "The Civil Service," by Prof. David P. Barrows, who declares that the civil service in the United States has ample responsibility, authority, and freedom of action, exceeding that of any other country in these respects; that, although uniforms and decorations are not in vogue, the public servant achieves respect, appreciation, and associations of intellectual and social satisfaction and worth. A further advantage cited is the opportunity for improvement of the service until it shall be equally as noteworthy as American business organization. A still higher goal might have been set. Other chapters of civic interest are those on Social Service, Teaching, Scientific Research, Applied Science, and those about occupations that enter into municipal administration, such as Accountancy, Engineering, Law, and Medicine.

Survey of Education in Utah.—Bulletin No. 18 (1926) of the Bureau of Education, United States Department of the Interior. The report of a survey made by the Bureau of Education at the request of the State Board of Education. It is quite comprehensive, covering elementary, secondary and higher education, training of teachers, and adult education. The final chapter, by Fletcher H. Swift, Professor of Education at University of California, on Financing the Elementary and High Schools, is of particular interest, and points out various inequalities in the present system of financing. Assumption of the financial responsibility by the state is recommended, but as an alternative an equalization fund is suggested. XIV + 510 pp. 60 cents. (Apply to Government Printing Office, Washington, D. C.)

The Legal Minimum Wage in Massachusetts.—This is an 84-page supplement to the March issue of *The Annals* of the American Academy of Political and Social Science. It is by Arthur F. Lucas, Ph. D., Assistant Professor of Economics, Clark University. It contains chapters on the origin and content of the law; industries to which applied; determination of rates; compliance with rates; results of the law; and conclusions. Appendices include the text of the law, a table of minimum wage decrees in force in Massachusetts on November 30, 1926, and a table of itemized cost-of-living budgets. The law is not compulsory but recommendatory and has been upheld as constitutional, and in view of the Supreme Court decision adverse to compulsory minimum-wage legislation a study of the Massachusetts act in practice is timely and valuable. (Apply to the Academy, Box 4060, West Philadelphia, Pa.)

Merchandising by Municipally Owned Utilities in Wisconsin.—Information Report No. 56 of the Municipal Information Bureau, University of Wisconsin, by Lorna L. Lewis and Esther Conner, dated March, 1927. It is a 5-page mimeographed report prepared from the official 1926 reports of the municipal utilities filed with the Statistical Department of the Railroad Commission of Wisconsin. Sixteen cities, according to this source of information, were doing merchandising and jobbing to some extent in connection with their utilities. (Apply to the Bureau, at Madison, Wis.)

Organizing a Community for Safety.—An article in the June number of *National Safety News*, by Robert E. Lee, President of the St. Louis Safety Council. It describes methods for community safety organization, with special reference to St. Louis. 2 pp. 40 cents. (Apply to the National Safety Council, 108 East Ohio Street, Chicago, Ill.)

Trends of Population in the Region of Chicago.—By Helen R. Jeter, Assistant Professor of Social Economy in the University of Chicago. The University of Chicago Press, Chicago, Ill. 1927. XV + 64 pp. $2.50.

This population study was prepared by the Local Community Research Committee of the University of Chicago and the Commonwealth Club of Chicago for the Chicago Regional Planning Association. It is put forth in the same attractive form as various other studies made for the Association. The data and the conclusions therefrom are for the purpose of aiding in the preparation of a regional plan. Many tables, maps and graphs are given and made use of in presenting the study and its implications.

Securing Employment for the Handicapped.—A study of placement agencies in New York City for the injured, sick and otherwise disabled, by Mary La Dame, Department of Industrial Studies, Russell Sage Foundation. It is published by the Welfare Council of New York City, in the form of a booklet of 133 pages. Twelve placement services and two other agencies were investigated, and eight other organizations were looked into to determine their relation to the inquiry; Detroit and Cleveland were also visited, the latter being treated in an appendix. The agencies are classified and described, their management and procedure analyzed, and the value of their work appraised by various tests. Recommendations are made, which seem likely to be acted upon. 50 cents. (Apply to Welfare Council, 151 Fifth Avenue, New York.)

Public Child-Caring Work in Certain Counties of Minnesota, North Carolina, and New York.—Publication No. 173 of the Children's Bureau, U. S. Department of Labor. By H. Ida Curry, superintendent of county children's agencies, State Charities Aid Association of New York. It describes the general system of child care as between the state and the counties in Minnesota and North Carolina, and the particular system in use in Dutchess County, New York. 96 pp. 15 cents. (Apply to Superintendent of Documents, Government Printing Office, Washington, D. C.)

The Components of Death Curves.—A paper by Louis I. Dublin, E. W. Kopf and Alfred J. Lotka, reprinted from *The American Journal of Hygiene* for May. It presents an analysis of life table deaths by causes, from the Statistical Bureau of the Metropolitan Life Insurance Co. 35 pp. (Apply to Dr. Dublin, Metropolitan Life Insurance Co., New York.)

Town Planning Schemes, Oxford, England.—A pamphlet of 47 pages, containing a letter of the Ministry of Health to the Oxford Town Clerk, together with the Ministry's suggestions for the consideration of the Town Council as to streets, building lines, character and density zoning, building area and height limitations, open spaces, etc., for the regional area, and zoning and other matters for the special area. The replies, chiefly affirmative, to these suggestions, as submitted for the approval of the Council by the Town Planning Committee, are also included; and there is a draft of an Interim Development Order on the part of the Ministry. (Apply to Alderman J. Carter, Oxford Town Council.)

Adult Education in the Public Library.—A reprint from the annual report of the librarian of the Public Library of Cincinnati and Hamilton County, Ohio, 1925-1926; Pauline J. Fihe, head, Adult Education Department. It describes the adult education activities of the library in question. 7 pp. (Apply to American Library Association, 86 East Randolph Street, Chicago, Ill.)

The Platoon School.—A new quarterly magazine, starting with January, 1927, published by the National Association for the Study of the Platoon or Work-Study-Play School Organization. The first number contains 51 pages of reading matter, including articles by Superintendents Wirt of Gary, Davidson of Pittsburgh (President of the Association), Claxton of Tulsa, Glenn of Birmingham, Bair of Colorado Springs, and by other contributors. $1.00 per annum; single copies, 25 cents. (Apply to the Association, 1210 D Street N. W., Washington, D. C.)

Salaries in City School Systems, 1926-27.—This is the topic of the March, 1927, number of the *Research Bulletin* of the National Education Association. It contains 61 tables and 7 charts, with explanatory text. 62 pp. 25 cents. (Apply to Research Division, National Education Association, 1201 Sixteenth Street N. W., Washington, D. C.)

Die Arbeiten des Ruhrverbandes.—An 8-page pamphlet in German, describing the water-purification works carried on in the Ruhr through the union established by Prussian enactment in 1913. There are 23 illustrations. (Apply to Dr.-Ing. Imhoff, Kronprinzenstrasse 37, Essen, Germany.)

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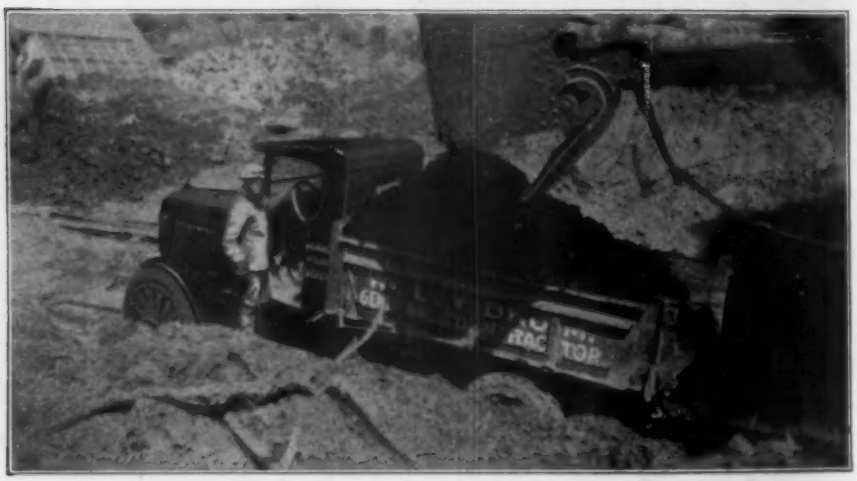

Proceedings, Third Annual Meeting, The American Municipal Association.—Edited by John G. Stutz, Executive Secretary. The American Municipal Association, Lawrence, Kans. 1927. 120 pp. $6.00.

This Association, founded in 1924 and based upon the various state municipal leagues, held its third annual conference, November 9-11, 1926, in St. Louis, Mo. The first session, besides including President Lambie's address and Secretary Stutz's report, was given over to a presentation of specific problems of the various leagues represented. Other sessions dealt at length with municipal magazines, and with the interchange and making available of information on municipal administration and on public utilities. The problem of securing legislation was discussed, and the field of topics appropriate for the Association's programs was canvassed. A list of state leagues of municipalities is included.

Swimming Simplified.—By Lyba and Nita Sheffield, Directors of Swimming at the Universities of California and Columbia (Summer Sessions). A. S. Barnes & Co., New York. 1927. XIII + 297 pp. $2.00.

This is a revised and enlarged edition of an instruction book that has been in use many years. As the title suggests, it starts from the beginning with the timid novice, and proceeds through various steps—and strokes—to fancy diving, life saving, water sports, and finally a discussion of the process and methods of teaching swimming, for the instructor, taking up the preceding chapters from the latter's viewpoint. It is fully illustrated, and contains much that is of interest to the individual learner as well as to the teacher.

Clinics, Hospitals and Health Centers.—By Michael M. Davis, Ph. D. Harper & Brothers, New York. 1927. XVI +546 pp. $5.00.

As executive secretary of the Committee on Dispensary Development of the United Hospital Fund of New York, the author of this volume had close contact with practical investigations in the field in question for a period of six years. As the number of persons receiving medical care annually in out-patient clinics in the United States is estimated to have increased from 4,000,000 in 1917 to 8,000,000 in 1922, the importance of such a study is apparent. The committee assembled the opinions and experiences of individuals and institutions and also conducted administrative experiments bearing upon the soundness of various principles and the effectiveness of different methods. The book is divided into five sections: Medical Practice in Hospital and Clinic, Scope of Clinic Service, Management of Patients, General Administrative Technique, and Special Technique for Particular Clinics. Of various modes of financial support, including operation, appropriations, contributions and endowment, the lessening importance of the last and the increasing part played by the first, in the form of patients' fees, is noted. The American public is said to be still averse to paying for preventive medical service, however.

Health-O-Gram.—A new weekly publication of the Department of Health, Newark, N. J. It began in June, and consists of letter-size mimeographed sheets, giving short health items from various localities, for the information of laymen, school teachers and publicity mediums. (Apply to the Department.)

The Organization and Administration of Health Education in the Secondary Schools of the United States.—This is the second of the Education Series of University of Oregon Publications. It is dated June, 1927, and consists of 112 pages. The authors are Fred Lea Stetson, of the University of Oregon, and Frederick W. Cozens, of the University of California at Los Angeles. The subject is treated for each state. A bibliography is included. $1.00, postpaid. (Apply to Manager, University Press, University of Oregon, Eugene, Ore.)

Child Welfare in New Jersey.—Two publications, Nos. 174 and 175, of the Children's Bureau, United States Department of Labor. Part 1, of 77 pages, relates to State Supervision and Personnel Administration; Part 2, of 148 pages, covers State Provision for Dependent Children. 15 and 25 cents, respectively. (Apply to Government Printing Office, Washington, D. C.)

What Our City Councils Are Doing.—List No. 18 of references to ordinances introduced in or passed by the city councils of large cities, issued by the Chicago Municipal Reference Library. April 25, 1927. 6 mimeographed sheets. (Apply to Frederick Rex, Librarian, 1005 City Hall, Chicago, Ill.)

Annual Report of the Engineering Department, Salt Lake City, 1926.—A well-printed and illustrated booklet of 103 pages, containing much descriptive as well as statistical matter. (Apply to Harry C. Jessen, City Engineer, Salt Lake City, Utah.)

Relief of City Traffic.—A series of four booklets giving the papers, questions and answers at the City Traffic Conference, Chicago, Ill., in April, 1927. The first of these received notice in this department in July. The second is on "Mass Transportation in Cities," by J. Rowland Bibbins; the third contains "Chicago Raised $450,000,000," by Eugene S. Taylor, and "Planning for Metropolitan Needs," by Robert Kingery; the fourth has "Answering the Parking Question," by H. B. Peabody, and "Law Enforcement," by Hon. Charles L. Bartlett. (Apply to National Automobile Chamber of Commerce, 366 Madison Avenue, New York.)

Standard Plumbing Code, State of New York.—A 49-page booklet, dated 1925, giving sections of New York State statutes relating to plumbing, together with the Standard Plumbing Code prepared for municipalities of New York State and recommended by a joint committee representing the State Department of Health, the New York State Conference of Mayors and Other Municipal Officials, and the New York Master Plumbers Association. Printed inserts give the 1926 legislation, and a 9-page mimeographed addition gives amendments to the Standard Plumbing Code, to May, 1927. (Apply to C. A. Holmquist, Director, Division of Sanitation, State Department of Health, Albany, N. Y.)

Salaries and Duties of City and Village Clerks in Illinois Municipalities over 2,000 Population.—A 14-page mimeographed report, resulting from a questionnaire issued by the Bureau of Municipal Information of the Illinois Municipal League; 89 municipalities are covered, although a few are missing out of the limits set. November, 1926. (Apply to the Bureau, Urbana, Ill.)

Proceedings of the American Concrete Institute.—A cloth-bound volume of 724 pages, reporting the 23rd annual convention of the Institute, held at Chicago, February 22-24, 1927. Many papers and committee reports are included, covering notable concrete structures here and abroad, various engineering and architectural problems and theories relating to concrete, and the results of research in the composition and behavior of concrete. (Apply to the Institute, 2970 West Grand Boulevard, Detroit, Mich.)

The Law of Special Assessment in Minnesota.—This subject is restricted to third- and fourth-class cities, and all villages, in Minnesota, no attempt being made to present the law for the three first-class cities and the one in the second class. The book, of 187 pages, is arranged in two parts, the first dealing with judicial decisions and the second with statutory provisions. It is Publication No. 16 of the League of Minnesota Municipalities and is primarily by Harold F. Kumm, LL.B., S.J.D. $1.50 paper; $2.00, cloth. (Apply to the League, University Library, Minneapolis, Minn.)

The First Proportional Representation Election in Cincinnati.—An 11-page article by S. Gale Lowrie in the June number of *Social Forces*, analyzing the first council election under the new Cincinnati charter, in November, 1925. $1.00. (Apply to The Williams & Wilkins Co., Baltimore, Md.)

Tax Rates, Assessed Valuations, and Exempt Property in Minnesota, 1927.—Publication No. 17 of the League of Minnesota Municipalities, compiled by Harvey Walker and Francis J. Putnam. It consists chiefly of three tables: (1) "Tax Rates and Assessed Valuations in Cities and Villages"; (2) "County Assessed Valuations, Tax Rates and Yields"; and (3) "Exempt Real Property in Minnesota." The third table would be clarified by inserting "Non-exempt" or "Taxable" before the words "Real Property" in the last two columns, in which is derived the percentage relationship of exempt to non-exempt real property, for counties and their subdivisions. 32 pp. 50 cents. (Apply to the League, University Library, Minneapolis, Minn.)

A Second Analysis of the Detroit Special Assessment Sinking Fund.—Prepared for the City Controller and the City Treasurer by the Detroit Bureau of Governmental Research. It is published by the Bureau under date of June, 1927, in a report of 19 mimeographed pages. 50 cents. (Apply to the Bureau, 316 East Jefferson Avenue, Detroit, Mich.)

Recent Forestry and Park Legislation in Connecticut.—A 4-page printed folder recounting briefly the action of the last General Assembly on the subjects of forests, parks, highway shade trees and outdoor advertising. (Apply to Connecticut Forestry Association, 205 Prospect Street, New Haven, Conn.)

A Plea for Maternal Nursing.—A 5-page article by Dr. Julius Levy, in the Monthly Bulletin of the Department of Health of Newark, N. J., for April. (Apply to the Department.)

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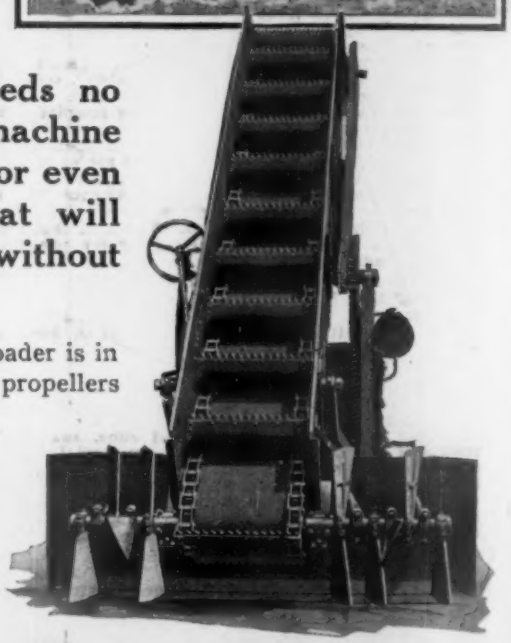

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New York at School.—By Josephine Chase, Assistant Director of the Public Education Association of the City of New York. Published by the Association. 1927. XII + 268 pp. $1.50.

The subtitle of this book is "A Description of the Activities and Administration of the Public Schools of the City of New York." It was prepared in collaboration with the school authorities and is designed to present a comprehensive picture whereby the average citizen may see the numerous activities of the school system in relation to one another. It does not aim to be either critical or exhaustive. New York City, with its million of pupils and 762 school units, provides a situation different from that of any other city. The book takes up in order a general description of the various grades of schools from kindergarten to high and vocational schools; general and special services afforded; extension work; control of attendance; the teachers; and administration. It is clearly written and attractively printed.

Special Day Pageants for Little People.—By Marion Kennedy and Katherine Isabel Bemis. A. S. Barnes & Co., New York. 1927. 48 pp. $1.50.

This brief volume contains directions, dialogue and verses for pageants designed as appropriate to the national holidays and various other special days, numbering 21 in all. The authors, who are experienced as teachers in the schools of Minneapolis, Minn., state that there is a dearth of material for little pageants for primary pupils, which they are attempting to meet.

Baptist City Planning.—Edited by Charles H. Sears, D.D. The Judson Press, Philadelphia. 1926. V + 276 pp. $1.00.

This is not properly a city-planning study, but, as the editor states, "is built upon the more obvious conclusions of Municipal City Planning, and is an attempt to apply the logic of these conclusions to church planning." After dissecting the city into various types of neighborhood, consideration is given to the specific requirements of ministry thereto; to the cooperative task of churches in a city-wide program of evangelism, religious education and social service; and to the conservation and distribution of Baptist forces and resources and the training of workers. The study was undertaken by a City Plan Committee, of which Dr. Sears was chairman, created by the City Missions Committee of the Northern Baptist Convention. Responsibility was divided among fifteen subcommittees comprising about 150 people.

The Measurement of Results of Public Health Work; The Rural Health Demonstration in Cattaraugus County, New York.—Two divisions of the annual report of the Milbank Memorial Fund, for 1926. The first, comprising 34 pages, suggests some of the more important considerations and methods in the measurement of public health efforts. The second, also of 34 pages, gives the achievements and status of the Cattaraugus County demonstration, for which 1926 was the fourth year. (Apply to the Fund, 49 Wall Street, New York.)

Digest of Report of Ohio Highway Transportation Survey.—An 11-page article in the June number of *Public Roads*, the monthly publication of the Bureau of Public Roads, United States Department of Agriculture, by J. Gordon McKay, Chief of the Division of Highway Economics, Bureau of Public Roads. It comprises a study of present traffic and a forecast for the future. 10 cents. Copies of the full report may be obtained upon request from the Bureau of Public Roads. (Apply to Government Printing Office, Washington, D. C.)

Manual and Specifications for the Manufacture, Display and Erection of U. S. Standard Road Markers and Signs.—A 44-page booklet, 31 pages of which are plates illustrating the various signs or their location, as adopted by the American Association of State Highway Officials. It is dated January, 1927. (Apply to the Association, 638 Munsey Building, Washington, D. C.)

The School Patrol.—A 12-page booklet issued by the Detroit Automobile Club Safety and Traffic Section, written by H. O. Rounds, Director of the Section. It describes the organization in Detroit of patrols of schoolboys to guard the safety of children before and after school at street intersections near the schoolhouse, thus supplementing traffic police work, excepting traffic direction. (Apply to the Club.)

Great Lakes Commerce and the Port of Oswego, N. Y.—This is a report, in two paper-covered volumes, of an investigation made for the Oswego Harbor and Dock Commission by Fay, Spofford and Thorndike, consulting engineers, of Boston, Mass., for the year 1925. Volume I, 639 pp. with appendices and index, contains the report proper (43 pp), which looks to the development of a new harbor at Oswego, and 15 appendices, the largest of which is a commodity survey of Great Lakes freight traffic; others deal with the Great Lakes in different aspects, the Barge Canal, the railroads, and with Oswego locally. Volume II is made up of 19 maps and 72 tables and diagrams, supporting the report. $10 (2 volumes). (Apply to Oswego Harbor and Dock Commission.)

Reports Received

ALBERTA, CANADA.—Proceedings, 22nd Annual Convention, Union of Alberta Municipalities, Edmonton, Alta., December 1-2, 1926.

BUFFALO, N. Y.—Annual Report, Department of Health, 1926.

CHICAGO, ILL.—Annual Financial Report, Board of Edution, 1926.

CHICAGO, ILL.—Annual Report, Police Department, 1926.

MOOSE JAW, SASK.—Financial Statement, 1926.

MOUNT VERNON, WASH.—Annual Report, City Clerk, 1926.

NEW YORK CITY.—Annual Report of Superintendent of Schools, year ending July 31, 1926.

NORWICH, CONN.—Annual Report, Board of Water Commissioners, year ending March 31, 1927.

SIOUX FALLS, S. DAK.—Annual Report, and Appraisal, Electrical Department, 1926.

Conventions This Month

AUGUST 9-12.—PORTLAND, ORE.
International Association of Fire Chiefs. Annual convention. Secretary James I. Mulcahey, Yonkers, N. Y.

AUGUST 10-13.—SEATTLE, WASH.
National Association of Real Estate Boards. Annual convention. Executive Secretary, Herbert U. Nelson, 310 South Michigan Avenue, Chicago, Ill.

AUGUST 12-18.—TACOMA, WASH.
American Prison Association. Annual Congress. General Secretary, E. R. Cass, 135 East 15th Street, New York.

AUGUST 16-18.—RED OAK, IOWA.
League of Iowa Municipalities. Convention. Secretary-Treasurer, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 16-19.—SALT LAKE CITY, UTAH.
International Association of Municipal Electricians. Annual convention. Secretary, Edwin H. Benz, Municipal Building, West New York, N. J.; Chairman of Exhibit Committee, Daniel J. Morgan, Sales Engineer, Hazard Manufacturing Co., Wilkes-Barre, Pa.

AUGUST 22-25.—CLEVELAND, OHIO.
Association of American Cemetery Superintendents. Convention. Secretary, W. B. Jones, Highwood Cemetery, Pittsburgh, Pa.

AUGUST 22-SEPTEMBER 3.—EVANSTON, ILL.
National School for Commercial and Trade Organization Executives. Address: Hugh Lynch, Merchants Association, Woolworth Building, New York.

AUGUST 23-25.—JAMESTOWN, N. Y.
New York State Association of Chiefs of Police. Annual convention. Secretary, James L. Hyatt, Police Department, Albany, N. Y.

AUGUST 23-25.—WILKES-BARRE, PA.
League of Cities of the Third Class in Pennsylvania. Annual convention. Secretary Leo J. Buettner, Johnstown, Pa.

AUGUST 24-26.—LUNENBURG, N. S.
Union of Nova Scotia Municipalities. Annual convention. Secretary, Arthur Roberts, K. C., Bridgewater, N. S.

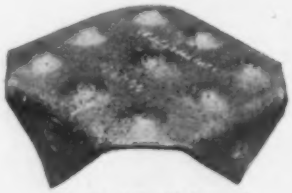
AUGUST 25-26.—NEPHI, UTAH.
State Municipal League of Utah. Annual convention. Secretary, William A. Fraser, 414 City and County Building, Salt Lake City, Utah.

AUGUST 31-SEPT. 2.—TORONTO, ONT.
Ontario Municipal Association. Convention. Secretary, Horace L. Brittain, 21 King Street, East, Toronto, Ont.

(For future convention dates, see page 269)

Speed Traffic with Safety

TRAFFIC Union Tank MARKERS



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100% EFFICIENT
NO MAINTENANCE
PERMANENT

"Star" Traffic Button

PEDESTRIAN---PROTECTION and CONTROL

JAYWALKING, the most hazardous habit, not only presents the very difficult problem for traffic authorities, but causes seventy-five per cent of the traffic congestions and accidents. PEDESTRIAN AND TRAFFIC LANES, properly marked, are proving the real effective solution. The Union Tank "UNIVERSAL SAFETY STOP" is the original traffic control line marker which, in the past several years, has been most severely tried and proven 100% efficient. It is now used by a large number of Cities and several State Highway Departments. Every unit of the Union Tank Universal Traffic Markers is made of boiler-plate—**STEEL**, heavily aluminum galvanized and because of their original, exclusive, patent grip, they STAY PUT—therefore are PERMANENT. There is a UNION TANK UNIVERSAL TRAFFIC MARKER for every purpose and every kind of pavement.

YOUR CHILDREN'S SAFETY DEMANDS POSITIVE PROTECTION

An unmistakable warning—in line of driver's vision

FREE TRAFFIC ENGINEERING SERVICE—WRITE FOR LITERATURE AND PRICES

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SAFETY STOP DISTRIBUTORS, INC.
915 Mission Street, San Francisco, Cal.

E. E. HORN, General Field Manager

LOCAL DISTRIBUTORS IN ALL LARGE CITIES

Conventions—When and Where

(For August conventions, see page 267)

SEPTEMBER, SECOND WEEK.—HURON, S. DAK.
South Dakota Commercial Secretaries Association. Annual convention. Secretary, G. R. McArthur, Huron, S. Dak.

SEPTEMBER 13-15.—DUBUQUE, IOWA.
International City Managers' Association. Annual convention. Executive Secretary, John G. Stutz, Lawrence, Kans.

SEPTEMBER 13-16.—BUFFALO, N. Y.
Assembly of Civil Service Commissioners. Annual meeting. Secretary, Charles S. Shaughnessy, Chief Examiner, Philadelphia City Commission, Philadelphia, Pa.

SEPTEMBER 13-16.—BOSTON, MASS.
New England Water Works Association. Annual convention. Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 16-17.—AKRON, OHIO.
American Water Works Association, Central States Section. Annual convention. Secretary, E. E. Bankson, 1111 Union Bank Building, Pittsburgh, Pa.

SEPTEMBER 16-17.—GAFFNEY, S. C.
South Carolina Commercial Secretaries Association. Annual meeting. Secretary-Treasurer, R. B. Beale, Chamber of Commerce, Spartanburg, S. C.

SEPTEMBER 19-23.—SACRAMENTO, CALIF.
League of California Municipalities. Convention. Executive Secretary, Wm. J. Locke, 707 Chancery Building, 564 Market Street, San Francisco, Calif.

SEPTEMBER 20-21.—DEL MONTE, CALIF.
American Institute of Accountants. Annual convention. Secretary, A. P. Richardson, 135 Cedar Street, New York.

SEPTEMBER 20-21.—SWAMPSCOTT, MASS.
Massachusetts Police Association. Annual convention. Secretary, John H. Shaughnessy, West Newton, Mass.

SEPTEMBER 26-29.—PHILADELPHIA, PA.
American Institute of Park Executives. Annual convention. Executive Secretary, Will O. Doolittle, Box 422, Tulsa, Okla.

SEPTEMBER 26-30.—CHICAGO, ILL.
National Safety Council. Annual Safety Congress. Managing Director, W. H. Cameron, 108 East Ohio Street, Chicago, Ill.

SEPTEMBER 27-29.—NIAGARA FALLS, ONT.
Canadian Good Roads Association. Annual convention. Secretary, George A. McNamee, New Birks Building, Montreal, Que.

SEPTEMBER 28-30.—SARATOGA SPRINGS, N. Y.
New York State Sanitary Officers' Association. Annual meeting. Secretary, Walter A. Leonard, M. D., Cambridge, N. Y.

OCTOBER 3.—DENVER, COLO.
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 638 Munsey Building, Washington, D. C.

OCTOBER 3-6.—WASHINGTON, D. C.
American Red Cross. Annual convention. Secretary, Mabel T. Boardman, National Headquarters, Washington, D. C.

OCTOBER 3-7—CLEVELAND, OHIO.
American Electric Railway Association. Annual convention and Manufacturers' Exhibit. Executive Secretary, J. W. Welsh, 292 Madison Avenue, New York.

OCTOBER 3-7.—MEMPHIS, TENN.
Playground and Recreation Association of America. Annual convention. Secretary, H. S. Braucher, 315 Fourth Avenue, New York.

OCTOBER 4-5.—GREENFIELD, MASS.
Massachusetts Federation of Planning Boards. Annual conference. Executive Secretary, Edward T. Hartman, 37 State House, Boston, Mass.

OCTOBER 4-6.—HARRISBURG, PA.
Pennsylvania State Association of County Commissioners. Annual convention. Secretary, L. C. Norris, Clearfield, Pa.

OCTOBER 5-7.—SAN JOSE, CALIF.
American Water Works Association, California Section. Annual convention. Secretary, Paul E. Magerstadt, East Bay Water Co., 512-16th Street, Oakland, Calif.

OCTOBER 10-12.—KANSAS CITY, MO.
American Social Hygiene Association. Annual regional conference. General Director, William F. Snow, M. D., 370 Seventh Avenue, New York.

OCTOBER 10-14.—CHICAGO, ILL.
Illuminating Engineering Society. Annual convention. General Secretary, L. H. Graves, 29 West 39th Street, New York.

OCTOBER 11-15.—HOT SPRINGS, ARK.
Southwest Water Works Association. Convention. Secretary, Louis A. Quigley, Fort Worth, Texas.

OCTOBER 12-13.—RACINE, WIS.
Wisconsin Chiefs of Police Association. Annual meeting. Secretary-Treasurer, Don McKay, Waukesha, Wis.

OCTOBER 12-14.—COLUMBUS, OHIO.
American Society of Civil Engineers. Fall meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

OCTOBER 13-14.—TORONTO, ONT.
Canadian Tax Conference of Citizens Research Institute of Canada. Director, Horace L. Brittain, 21 King Street, East, Toronto, Ont.

OCTOBER 17-21.—CINCINNATI, OHIO.
American Public Health Association. Annual meeting. Secretary, Homer N. Calver, 370 Seventh Avenue, New York.

OCTOBER 18-20.—NEWTON, KANS.
League of Kansas Municipalities. Annual convention. Secretary-Treasurer, John G. Stutz, University of Kansas, Lawrence, Kans.

OCTOBER 23-26.—COLUMBUS, OHIO.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, Clarence R. Miles, Davenport, Iowa.

OCTOBER 26-29.—PINEHURST, N. C.
American Institute of Steel Construction. Annual convention. Executive Director, Charles F. Abbott, 285 Madison Avenue, New York.

OCTOBER ——, ELMIRA, N. Y.
American Water Works Association, New York Section. Annual meeting. Secretary, E. D. Case, 50 Church Street, New York.

NOVEMBER 7-9.—DURHAM, N. C.
American Water Works Association. North Carolina Section. Annual meeting. Secretary-Treasurer, H. G. Baity, Associate Professor, School of Engineering, University of North Carolina, Chapel Hill, N. C.

NOVEMBER 10-11.—NEW YORK.
Governmental Research Conference. Annual meeting. Secretary, Arch Mandel, 409 Lowe Building, Dayton, Ohio.

NOVEMBER 10-11.—NEW YORK.
National Association of Civic Secretaries. Annual meeting. Secretary, Henry H. Curran, City Club, 55 West 44th Street, New York.

NOVEMBER 10-11.—NEW YORK.
National Municipal League. Annual convention. Secretary, H. W. Dodds, 261 Broadway, New York.

NOVEMBER 10-11.—KITCHENER, ONT.
Ontario Associated Boards of Trade and Chambers of Commerce. Annual meeting. Secretary, T. Marshall, Royal Bank Building, Toronto, Ont.

NOVEMBER 14-18.—DALLAS, TEXAS.
American Society for Municipal Improvements. Annual convention. Address: E. A. Kingsley, City Engineer, Dallas, Texas.

NOVEMBER, WEEK OF 28TH.—ATLANTA, GA.
Asphalt Association. Annual conference. Secretary and General Manager, J. E. Pennybacker, 441 Lexington Avenue, New York.

DECEMBER 1-2.—WASHINGTON, D. C.
Highway Research Board of the National Research Council. Annual meeting. Director, Charles M. Upham, Washington, D. C.

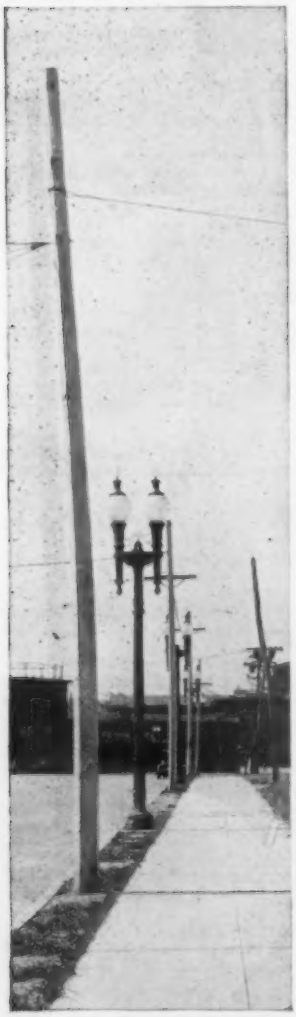
DECEMBER 7-8.—WASHINGTON, D. C.
National Rivers and Harbors Congress. Annual convention. Secretary, S. A. Thompson, 824 Colorado Building, Washington, D. C.

JANUARY 9-10.—DETROIT, MICH.
International Association of Street Sanitation Officials. Annual convention. Secretary, A. M. Anderson, 10 South LaSalle Street, Chicago, Ill.

JANUARY 9-13.—CLEVELAND, OHIO.
American Road Builders' Association. Annual convention and Road Show. Secretary, Ethel A. Birchland, Earle Building, Washington, D. C.

JANUARY 19-21.—NEW YORK.
American Society of Civil Engineers. Annual meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

ELRECO
POLES



No need of guy wires with Elreco poles; no need of underground wiring

Does civic beauty cost too much? Should crowded curblines be allowed? The waste of space and upkeep and of the chance to guide the growth of municipalities is quickly passing as a vogue.

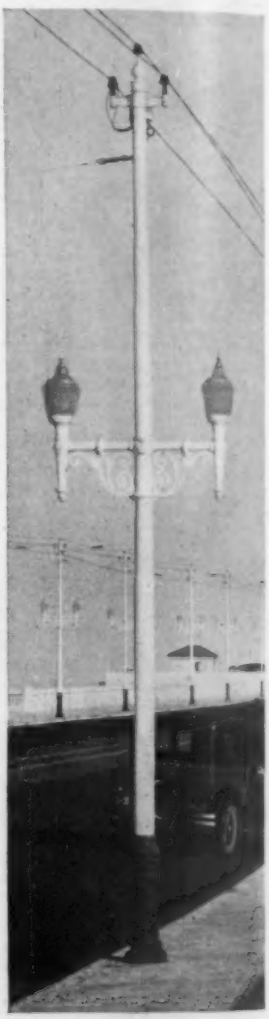
For one Elreco *Combination* Pole can do the work of many different types with limited utility. To carry the trolley span wires and lighting circuit wires and also support the lighting units at proper heights for maximum illumination is the natural function of the *Combination.* Elreco *Combination* Poles save the cost of all underground wiring and subsequent upkeep.

The installation shown here on the right is plainly preferable to the complicated effect shown on the left. Progressive cities everywhere are calling on Elreco engineers for cooperation in simplifying curblines. Write to this company for authoritative recommendations on the new "White Way" lighting.

THE ELECTRIC RAIL-WAY EQUIPMENT CO.

CINCINNATI, OHIO

30 Church St. New York, N. Y.



One Elreco Combination Pole does duty here and ornaments the street

---save the costs and confusion of separate poles for separate duties

Yes—we should like you to mention THE AMERICAN CITY.

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Internal-Combustion Engines for Pumping Service

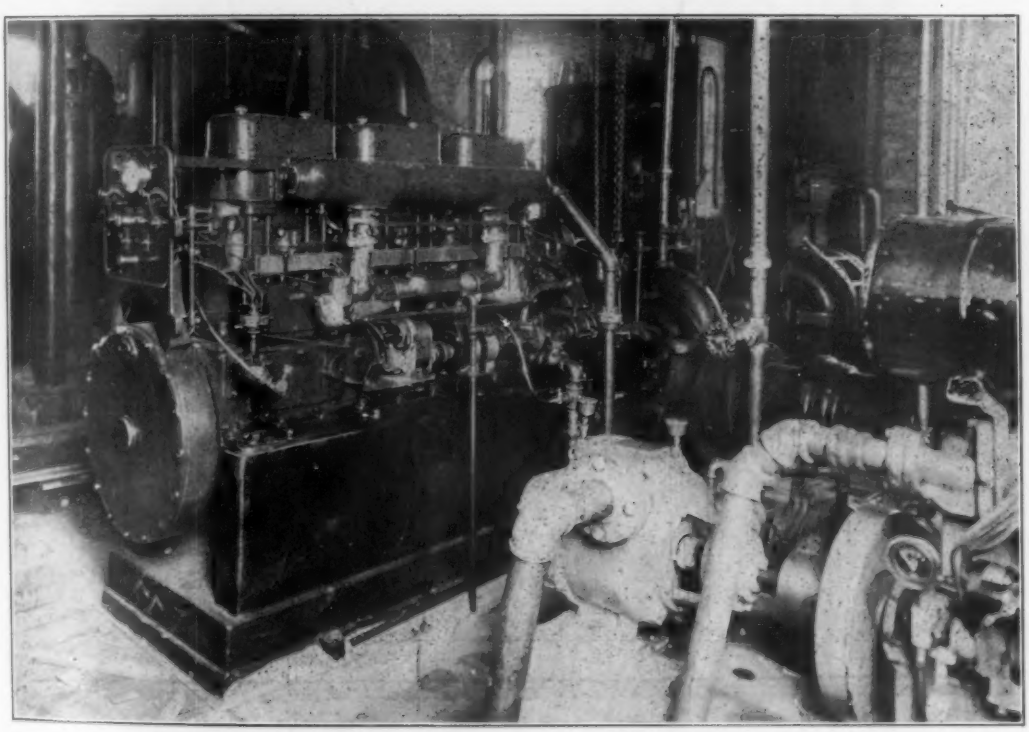
A 4- and 6-cylinder 5½ x 7 conservatively high-speed gasoline engine designed especially for pumping service has been developed by the Buffalo Gasolene Motor Co., 1280-1290 Niagara Street, Buffalo, N. Y. This model "R" is quiet and smooth-running, vibration being practically eliminated. Long service is assured by the extensive use of alloy steel and castings of great tensile strength. Because of its rugged construction and dependability it is being used by a number of pump manufacturers where high duty is required for municipal water-works and fire protection.

This model in 4- or 6-cylinder type has an enclosed fly-wheel, and ledge mounting, and is equipped with manifolds, dry sump lubricating system, and water-cooling system. The normal horsepower of the 4-cylinder engine is 85 to 120, and of the 6-cylinder, 150 to 210 at a normal speed of 1,200 r.p.m. and a maximum speed of 1,500 r.p.m. The double ignition system has independent battery distributor, coils and high-tension magneto operating two sets of spark plugs and switches. The 1¼-inch Stromberg carburetors are fitted with drip-pan and enclosed air-take. The two-unit electric starting motor and generator, 12-volt, has all gears enclosed, and a storage battery of of large capacity.

The Fire Underwriters' approved fuel-supply system, including an engine-driven plunger pump, service tank mounted on the engine, and hand supply pump, has a rotary vacuum pump and vacuum tank connected to the carburetors. The control panel is of cast aluminum, mounted over the fly-wheel housing, with all controls, gages and instruments conveniently arranged, including spark and throttle controls, ignition switch, electric starter switch, primer, ammeter, oil pressure gage, tachometer and motor-meter. The governor is the centrifugal, precision type, fully enclosed, connected to the ball-bearing throttle valve, adjustable for close regulator, and will maintain a speed with a variation of less than 5 per cent from the full load to no load.

The Dorr Traction Clarifier

During the last few years there have been an increasing number of sewage and water plants built with mechanically cleaned sedimentation units.



A BUFFALO GASOLINE ENGINE INSTALLED IN THE WATER-WORKS OF AUBURN, N. Y.

Chicago Traffic Signal Standard

The North Shore Park Commission of Chicago, in installing the latest and most up-to-date traffic signal system of General Electric equipment, selected for protection in case of collision the Chicago Concrete Traffic Signal Standard.

It is necessary to protect these expensive signals in every possible manner.

The illustration shown on this page, with control box attached to the signal, brings out the principal point in this newest development in that the box is mounted on the side of the pole without any unsightly bands around the pole and connections. Special fittings which are exclusive with the Chicago Concrete Traffic Signal are furnished to bring the wires out the side of the pole at any point desired for control box equipment.

Let us help you solve your lighting problems!

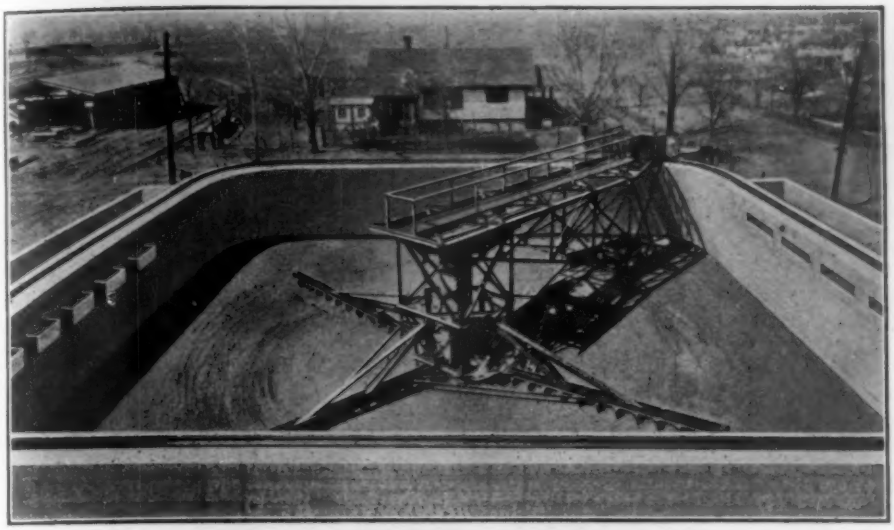
CHICAGO CONCRETE POST COMPANY

Paul K. Fleming, President

Lawrence, Lamon & Leland Avenues

CHICAGO, ILLINOIS, U. S. A.

Yes—we should like you to mention THE AMERICAN CITY.



THE NEW DORR TRACTION CLARIFIER

Sanitary engineers now generally agree that not only is continuous sludge removal more efficient, but that it is less costly, owing to simpler tank construction, labor charges saved and the uniformity of results produced. The Dorr traction clarifier, made by the Dorr Co., 247 Park Avenue, New York, is an improved and simplified continuous sedimentation unit. It operates in a square concrete tank built with a combination sloping and flat bottom. The sloping bottom is circular around the center, and the flat portion extends from the edge of the slope to the sides of the tank. The mechanism consists essentially of two sets of raking arms, one for the sloping and one for the flat bottom, and a drive unit which revolves these arms. The drive unit, consisting of traction wheel, reduction gears and motor, travels around the periphery of the tank on a steel rail and is connected to the center scraper by a driving truss. This truss also carries the scrapers for the flat bottom of the settling tank.

The center raking mechanism is attached to a cage suspended from a step bearing at the top of a column in the center of the tank.

The driving truss extends beyond the center column a distance sufficient to allow the outer end to travel out to the corners of the tank and still be supported at the center. As the drive unit travels around the sides of the tank, the inner end of the driving truss moves slowly over the center cage and thus revolves the cage and the center scraping arms. Power for the drive unit is brought in through a conduit in the center column. All electrical equipment is entirely covered, greatly aiding maintenance.

The particular advantages claimed for the traction type clarifier are strong, rigid construction of the mechanism, smooth positive drive with pulling force exerted at the outer end of the driving truss, no submerged bearings or driving parts, no superstructure over the tank, no large housing required, merely a casing to protect the drive unit, less concrete required in the corners, and a skimming attachment which can be easily installed when required by the presence of a large amount of grease or other floating matter.

A Motor Roadside Mower

The expensive and slow method of clipping roadsides by horse-drawn mowers or by scythes can now be replaced by using a Fordson tractor equipped with a Detroit mower, manufactured by the Detroit Harvester Company of Detroit, Mich. This unit is equipped with 46-inch rear and 27½-inch front special rubber-tired highway wheels built by Whitehead & Kales Co., also of Detroit, Mich. With this sturdy one-man labor-saving combination, it is possible to cut from 30 to 40 miles of roadside daily. The operator of the unit drives the Fordson at a speed of from 5 to 10 miles an hour, and as the mowing-bar is located between the front and rear wheels on the right side of the tractor, he can easily raise the mowing-bar over obstructions. This is done by drawing backward on the elevating lever within easy reach of the operator's right hand. Ditch banks can be cut at an angle of approximately 30 degrees upward or downward from the horizontal position of the bar.

A DETROIT-FORDSON MOWER EQUIPPED WITH WHITEHEAD & KALES WHEELS

EASY to see, and HARD to beat—for

Reliability and Durability

The Lehman Traffic Guide

Write for our illustrated folder

Elkhart Foundry & Machine Co.

Elkhart, Indiana

Marion "PARKWAY" Steel Taped Cables

With the DOUBLE STEEL strip giving DOUBLE LIFE in all Voltages in Single, Duplex, and Triplex Conductor. Also Lead-Covered, Traffic-Control and Fire-Alarm Cables.

MARION INSULATED WIRE & RUBBER CO.

Factory—Marion, Indiana

Chicago	Indianapolis	New York	Los Angeles
215 N. Desplaines St.	Odd Fellows Bldg.	171 Madison Ave.	A. S. Lindstrum Co.

The mowing-bar is adjusted to cut at optional heights up to 9 inches from the ground by means of a chain extending from the inner hinge casting to a notched bracket placed under one of the forward motor head bolts. By this adjustment, the mowing-bar floats at a designated height from the ground, missing all accumulated trash, so injurious to sickle-bars.

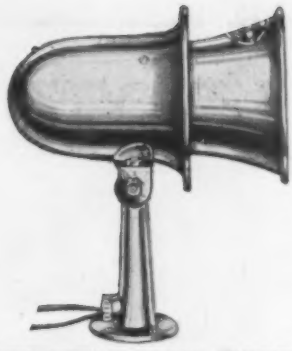
The power to operate the sickle-blade is taken from the pulley-gear of the Fordson through a two-speed, self-lubricating power take-off, giving the operator the option of six cutting speeds and having the power of the motor in reserve, thus insuring a clean job of cutting, even when tackling the most rank growths of weeds or grass.

It is reported that one Wisconsin county recently purchased two Fordsons equipped with the Detroit mower to replace contracts for mowing at $2 per mile. One of the contractors having a patrol had equipped his Fordson with a Detroit mower and Whitehead & Kales highway wheels and to the surprise of the Highway Commission turned in vouchers for $75 daily, but only for a few days. Immediate action was taken by the Road Commission, resulting in the above purchase.

A New Electric Siren with a Radius of a Quarter of a Mile

For use in fire-trucks, ambulances, motorcycles, and other municipal conveyances, the Federal Electric Co., 8700 South State Street, Chicago Ill., has produced a new electric siren. It has a sound radius of ¼-mile, and may be adjusted in either a horizontal or a vertical position.

The siren is of "streamline" design, and all visible parts, including the bracket and base, are heavily nickel-plated, giving a durable and attractive appearance. It is weatherproof, being entirely enclosed, and is simple in construction. The motor housing and horn of the siren are of spun brass. The base is of cast brass. The stator and rotor are die-cast from high-grade aluminum. The Universal motor may be had in any voltage from 6 to 250 volts, inclusive.

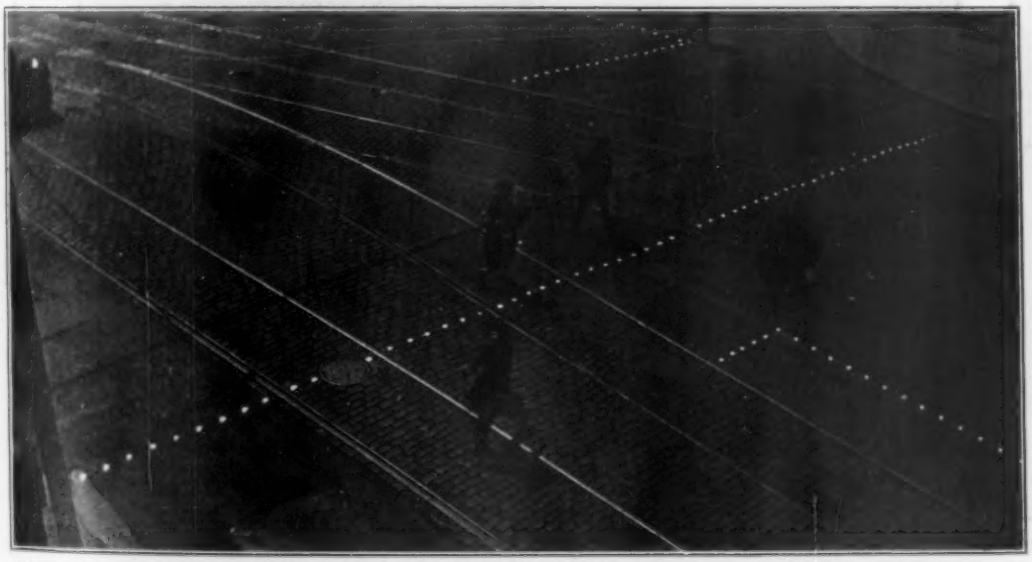


THE NEW FEDERAL ELECTRIC SIREN

In addition to the nickel-plated finish, the siren may be had in brass finish, buffed, brushed and lacquered. The lead wire may be brought through the base or through a bushing on the side of the bracket, as no wiring need be exposed.

Dunn Now With American Hume Concrete Pipe Co.

The American Hume Concrete Pipe Co., United Savings Bank Building, Detroit, Mich., has announced that J. A. Dunn has taken the position of Chief Engineer of the American Hume Concrete Pipe Co., the licensees for America for the Australian Hume developments. Mr. Dunn, who was formerly Assistant Secretary of the American Concrete Pipe Association and later Chief Engineer for the Independent Concrete Pipe Co., at Indianapolis, succeeds W. D. Kimmel, who has resigned to take over the management of the Detroit Hume Pipe Co., the Michigan licensees for the Hume process. Mr. Kimmel has been with the company since its inception two years ago.



NATIONAL TRAFFIC APPLIANCE TRAFFIC MARKERS INSTALLED AT JUNCTION OF IRVING PARK BOULEVARD AND LINCOLN AVENUE, CHICAGO

The pavement depicted has granite block, concrete, brick, wood block and asphalt surfacing

ELECTRIC FLASHING BEACONS

To Mark DEAD-END ROADWAYS BLIND CORNERS

SAFETY ZONES SUDDEN CHANGES IN GRADE SHARP CURVES

Complete information will be furnished upon request

CROUSE-HINDS COMPANY

ESTABLISHED 1897

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CH 309

THE NEW HONHORST OIL-BURNING TAR HEATER

A New Oil-Burning Tar Heater

A new oil-burning tar heater which heats quickly and economically and is simple to operate, has been developed by the Joseph Honhorst Co., 1016 West 6th Street, Cincinnati, Ohio. This heater is of the torch type, burning kerosene and emitting a long, streaming flame which can be regulated to control the temperature. Baffle-plates distribute the hot gases evenly and force them into contact with all parts of the kettle. The fuel tank is of pressed steel with a hand pump, pressure gage and hose connection. The manufacturers claim a distinct advantage in the ease with which the burner can be removed from the heater and used independently for other purposes.

The kettle is half round, made of heavy steel with welded, leak-proof seams. Hot material is drawn off through a 2-inch valve in the rear. A strainer plate over this outlet prevents dirt from clogging the valve. A new feature is the perforated division plate inside the kettle, which keeps the cold lumps of material separate and allows the melted material to flow toward the draw-off, where the heat is more intense. The result is that the material flows from the kettle at a much higher temperature. The cover is attached with hinges and fits tightly, so that the material will not splash out when the heater is being moved. Steel wheels with plain bearings are standard equipment, but roller bearings and rubber tires can be furnished where desired. When rubber tires are furnished, guards are provided to protect them from the heat.

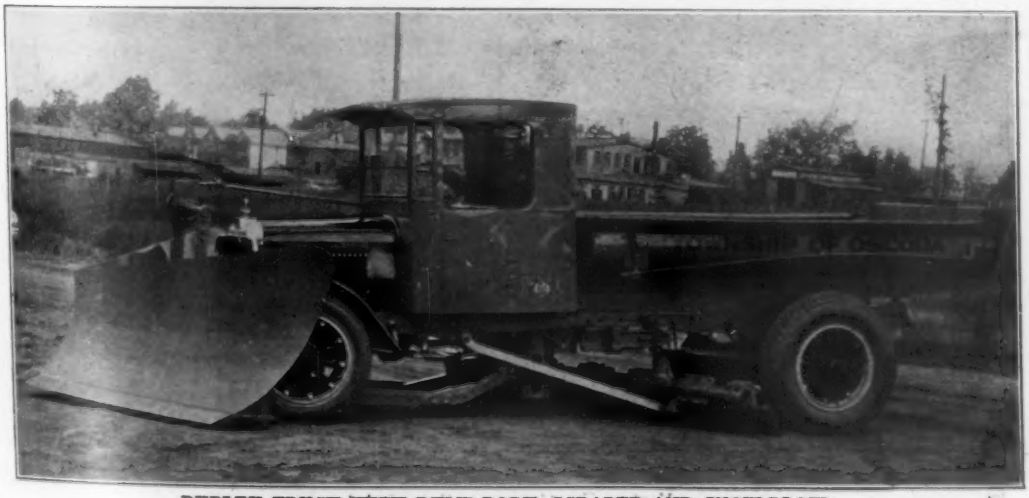
Recent Norwood Contracts

The Norwood Enginering Co., Holyoke, Mass., has recently secured the contract for a new 5,000,000-gallon filtration plant for the city of Meriden, Conn. This company also has the contract for the filtration plants at Lake Forest, Ill.; Dunkirk, N. Y.; High Point, N. C., and Elizabeth City, N. C., and contracts for additional filters for Raleigh, N. C., and Akron, N. Y.

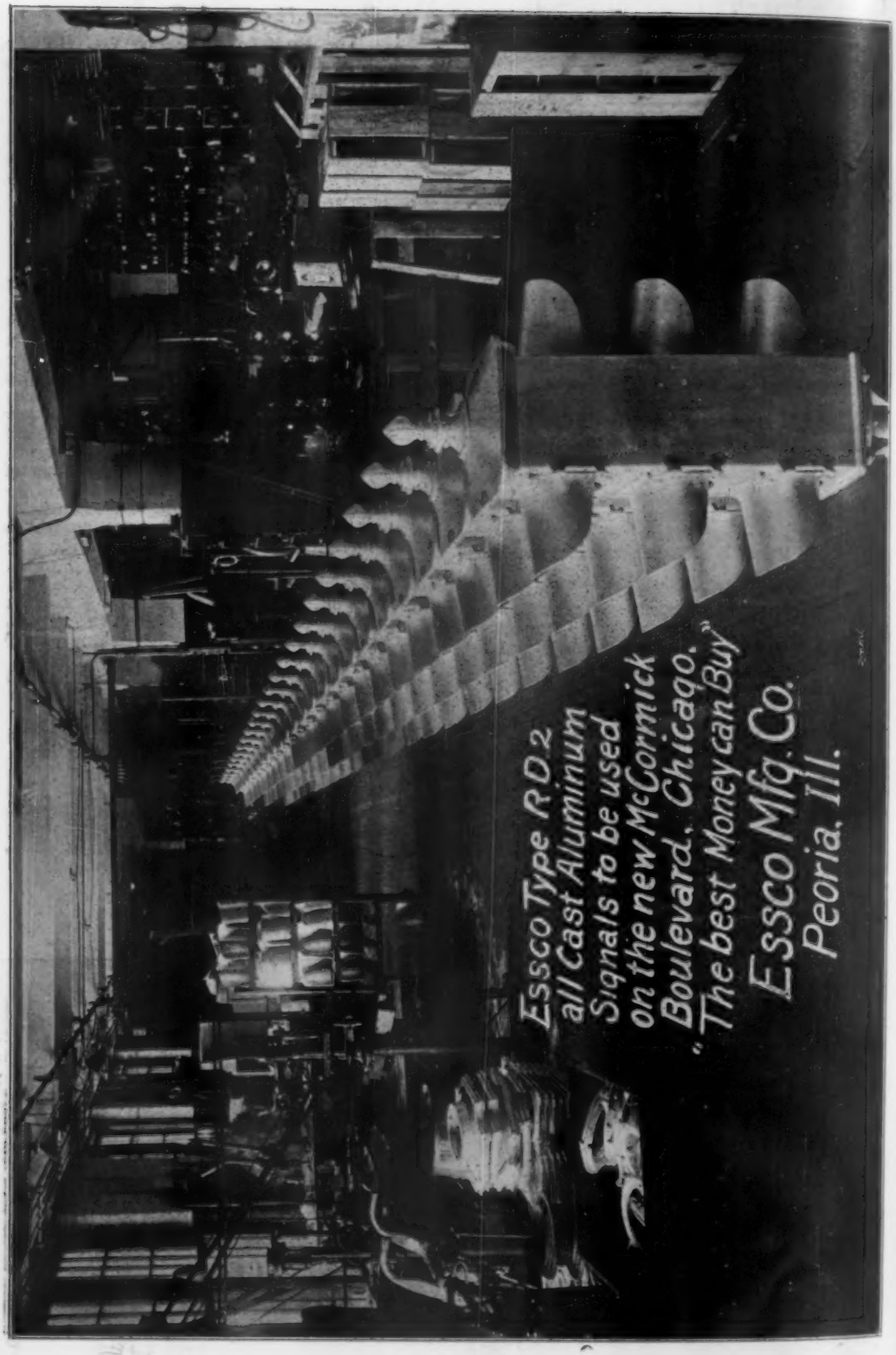
A Completely Equipped Road-Building Truck

The officials of Oscoda Township, Iosco County, Mich., recently purchased a Duplex road-building and maintenance truck built by the Duplex Truck Co., Lansing, Mich. This truck is said to be one of the most completely equipped trucks made for road service. The chassis is the standard 3-ton Duplex, and the body is of three yards capacity with an underbody power hoist. The road scraper is the latest type Monarch reversible scraper and can be adjusted from the driver's seat. The snow-plow is a Wausau Universal plow; the contour of the moldboard is such that the snow, instead of being wedged or thrust from the highway, is actually lifted and rolled in exactly the same manner as soil is turned by an agricultural plow. The push frame of the snow-plow is not attached to the front axle, but is rigidly secured to the frame. The snow-plow rides on heavy adjustable shoes, and a safety shoe is provided at the nose to take care of the car tracks and other obstructions that may be encountered.

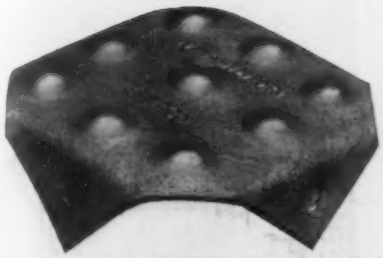
With a dump-body for hauling materials, a road scraper and a snow-plow all combined in one unit, this truck makes it possible for a town to keep its highways in good condition during the summer months, as well as to remove the snow in the winter so that the roads will be open for traffic throughout the year. By combining all three units in one job, the initial cost is lower than when separate units are purchased, as well as there being no idle motor equipment during any period of the year, an advantage recognized by all road construction and maintenance departments as of great importance to the taxpayers.



DUPLEX TRUCK WITH DUMP-BODY, SCRAPER AND SNOW-PLOW



Mention THE AMERICAN CITY—it helps.



THE UNION TANK UNIVERSAL SAFETY STOP FOR TRAFFIC-CONTROL LINES

Speed Traffic with Safety Stops for Traffic-Control Lines

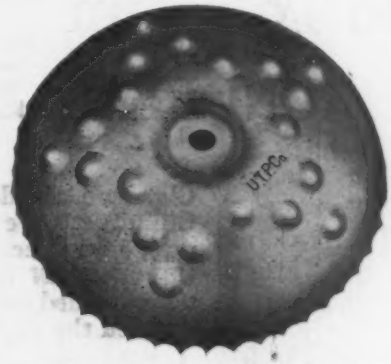
The annoyance and expense of continually repainting traffic-control lines may be done away with by using traffic safety stops and buttons. They are now being used in many cities on the Pacific Coast and in the Middle West. The "Union Tank Universal" traffic markers are manufactured by the Union Tank & Pipe Co., 2801 Sante Fe Avenue, Los Angeles, Calif., and generally distributed by the Safety Stop Distributors, Inc., 915 Mission Street, San Francisco, through local distributors in all large cities. After over two years of the most severe testing in many of the largest cities of the United States, the company has recently entered the field for nation-wide distribution. The efficiency and permanency of the markers have made them popular with city officials, and within the last few months two shipments have gone to foreign countries.

All the markers are made of boiler-plate steel and are heavily galvanized under a special aluminum galvanizing process which fuses the galvanizing into the metal. The steel has a tensile strength of from 73,000 to 80,000 pounds. The markers are easily installed in any kind of paving by unskilled labor, the tools required being those used by street departments. According to the manufacturers, they can be installed for the approximate cost of four to five paintings and will last as long as the pavement. Being heavily galvanized, they are always bright and readily seen day or night, rain or shine. Heavy traffic does not displace the markers, and through the many tests which they have been subjected to they have not shown any tendency to loosen, sink into the pavement, break or cover up, regardless of weather conditions.

The safety stop is manufactured in two types of installation so that it can be installed in any kind of pavement. This marker is a plate 4½-inches square, heavily galvanized, with the corners bent over 1¼ inches, making four prongs which are driven into the pavement.

The traffic buttons are made in three sizes and are adaptable for the "4-button system" at intersections, safety zones, traffic-dividing lines, marking of parking spaces and restrictions, etc. The "star" style button is 2½ inches high by 12 inches in diameter, with countersunk bolt pocket, embossed star on the surface, and patent grip edge. It is guaranteed to carry a 50-ton load and is heavily galvanized. The "curve-line" style button is 1 inch high by 9 inches in diameter and of the same design and construction as the "star," except that it has an embossed ring design. The third style is the "Park-line" button, which measures ¾-inch high and 6 inches in diameter.

One bolt only is required for installation. The manufacturers ordinarily do not furnish the bolts, and the various city departments use lag-screws, common bolts, expansion bolts, inverted carriage bolts anchored in the pavement, etc. No chipping for lugs is required and no concrete filler.



THE STAR BUTTON FOR THE FOUR-BUTTON SYSTEM OF TRAFFIC CONTROL

A One-Man Weed Burner for Streets and Ditches

City and county public works departments and state highway commissions are among the many users of weed burners for killing seeds and growing plants. A kerosene burner outfit has been produced by the Hauck Manufacturing Co., 126-134 Tenth Street, Brooklyn, N. Y., for quick and satisfactory cleaning of street gutters and roadsides of growing plants in the spring and seeding plants in the fall, where poisonous liquid weed killers, on account of danger to children and livestock, cannot be used. The saving in time and labor involved,

HAUCK WEED BURNER, WHICH CUTS TIME AND LABOR COSTS

IN CLEVELAND.... traffic capacity of two leading thoroughfares has been more than doubled by installing the Tokheim CHRONOPLAN System

Cleveland affords an outstanding example of CHRONOPLAN efficiency. On Carnegie Avenue, and Euclid Avenue, the Tokheim CHRONOPLAN System has reduced running time, speeded the flow of traffic and more than doubled the capacities of these main arteries.

On Carnegie Avenue, for a distance of approximately four miles through blocks varying in length from 150 feet to 800 feet, the Tokheim CHRONOPLAN System, with its 22 signals, permits traffic to move continuously in both directions at a uniform speed of 25 miles per hour. Running time through this section has been reduced from 21 minutes to 9 minutes. Thus the traffic capacity of Carnegie Avenue has been more than doubled. Signal timing has made speeding impossible, thereby reducing the number of accidents.

These remarkable results have been accomplished without restricting cross traffic in any way whatever. As a matter of fact, cross traffic has been fully protected at every corner, and in doing this, 24 traffic officers operating hand semaphores have been released for regular patrol duties. Pedestrians who formerly were required to wait for as long as 10 minutes to cross Carnegie Avenue now have an opportunity to cross every minute.

On Euclid Avenue, Cleveland's main business street, the Tokheim CHRONOPLAN System has secured equally beneficial results. This thoroughfare was formerly controlled by the old synchronized system and the traffic jams were a source of problematic concern to city officials. The CHRONOPLAN System, with 9 signals installed over about a mile of Euclid Avenue, quickly adjusted the situation and now proportionate savings in running time are possible on this important street. Street cars on Euclid Avenue have been able to save 5 minutes over their old schedule and "peaks" in the power load have been nicely smoothed out.

Every city official charged with the difficult problem of efficient traffic control—street railway officials concerned with the problem of maintaining schedules—should have full information on the Tokheim CHRONOPLAN System. Write department "M" for complete information.

TOKHEIM OIL TANK & PUMP COMPANY
FORT WAYNE, INDIANA

since, according to the manufacturers, two men now can do the work of four in less than half the time, is enough to pay for the outfit in a few months' use.

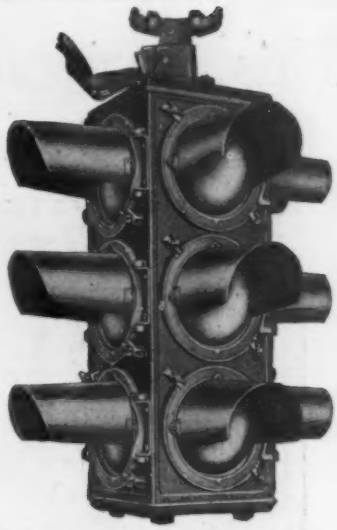
The one-man burner consists of a 3-gallon welded steel tank tinned to make it rustproof, equipped with a powerful, quick-acting pump, gage, filler cap, and burner valve, back-rest and adjustable leather shoulder-straps. The 6-foot length of oil-resisting hose with unions, and the burner with oil needle valve, oil strainer, union and carrying handle, are not affected by wind or cold weather. The burner flame is 3½ inches x 30 inches—1800 degrees Fahrenheit; the oil consumption is 2 gallons per hour. The net weight is 27½ pounds.

Other outfits with 5-gallon, 12-gallon and 15-gallon tanks are also available with single or double burners. A truck for these larger-size tanks can be furnished. It is detachable, of steel throughout, well-balanced, and fitted with wide-tired roller-bearing wheels 24 inches in diameter. Torches for burning grass on water-supply work and minor weed-burning operations are made with bracket reinforcement or with swing joint, in 1½- to 3-gallon capacity.

Automatic and Manual Traffic-Control Systems for Streets and Highways

A traffic-control system which, according to the manufacturers, embodies all the desirable features found in other systems and eliminates their inherent limitations, has been developed by the Tokheim Oil Tank & Pump Co., Fort Wayne, Ind. With this system, complete flexibility is obtained, permitting the system to be adjusted for any desired traffic movement. Maximum street capacity is obtained when all traffic moves continuously at maximum safe speed and when no time is lost by stopping, standing and starting. To obtain this condition it is necessary that relative timing be maintained between the "Go" periods on all signals in a system. If blocks are of uneven length, or if traffic volume varies on different streets, which is the normal condition in every city, maximum efficiency of traffic movement cannot be obtained unless individual adjustment is provided at each intersection.

THE TOKHEIM AUTOMATIC TRAFFIC-SIGNAL CONTROL



TOKHEIM FOUR-WAY AERIAL TRAFFIC-CONTROL SIGNAL

The desired time relation between signals is maintained by the "Chronolizer" upon which is set up the time-cycle for the "Chronoplan" system of this company. This may be easily adjusted for any desired length between 30 and 200 seconds. The most efficient time-cycle varies in length with traffic conditions, and may vary for different hours of the day, as traffic changes. Future needs are difficult to anticipate; therefore, adequate flexibility of cycle adjustment should be provided. Before installing a system it is difficult, if not impossible, to determine what length cycle will give best results. Observation of traffic, after the system is in use, and adjustment of the cycle to suit actual conditions, have been found to be the only practical method.

The Chronolizer consists essentially of an automatic flasher. The main wires are energized during alternate periods in the cycle. The length of these periods can be varied by the right- and left-hand pointers, respectively, and the time between these periods can be varied by the center pointer. For convenience in setting the pointers, the dials are calibrated in seconds. Each intersection in the system is equipped with a Chronolizer. When desired, this secondary control may include a manually operated switch which provides complete auxiliary manual control for the intersection. An intersection may be operated manually for a time without disturbing the rest of the system and then be cut back onto automatic control without being thrown out of step.

Any standard two- or three-color signal may be used in this system. This company manufactures a four-way, three-color aerial traffic-control signal, a four-way, two-color, aerial traffic-control signal, a four-way, three-color, post-type traffic-control signal, a one-way, three-color, horizontal bracket signal, and a one-way, three-color, vertical bracket

This Accident Couldn't Happen with Cyclone Road-Guard!

Cyclone Road-Guard has been adopted by leading highway commissions for bridge and culvert approaches, sharp curves, steep grades, road ends, etc.

A crash—and the intended protection of wood guard rails becomes the menace of piercing timbers. Here is an excellent example—a wood guard rail driven through the radiator, clear to the back cushion of the driver's seat.

Cyclone Road-Guard eliminates this hazard. Never has been broken through. Tests by Prof. Wm. J. Putnam, University of Illinois prove that less than 60 feet of Cyclone Road-Guard will absorb the impact of a Buick Sedan weighing 3,300 lbs. and traveling 40 miles per hour! Write for reprint of tests including tables for cars of all weights at speeds up to 60 miles per hour. Address nearest offices.

Also see Roads & Streets Catalog

Cyclone Fence Company

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Works and Offices:
North Chicago, Ill., Cleveland, Ohio,
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Direct Factory Branches in All Principal Cities

Pacific Coast Distributors:
Standard Fence Co., Oakland, Calif.
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The Mark of Quality

Cyclone ROAD-GUARD

Reg. U.S. Pat. Off.

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signal. These signals are described in detail in illustrated bulletins.

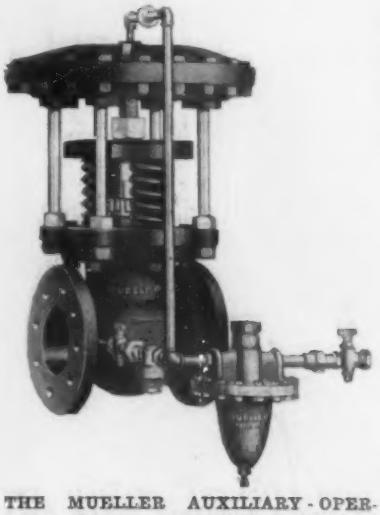
In the typical wiring system, only three interconnecting conductors are required throughout, as the energy carried by these conductors is less than four watts per intersection; number 14 wire is generally large enough. Energy for each signal is supplied from a local service. Each secondary control is operated by energy from a local source during the change periods, but at the end of one or both of these periods the flasher cuts off its own local operating current. The flasher then stops until current is supplied from the Chronolizer over either A or B wire. These wires are energized for equal periods in each cycle, starting half a cycle apart and holding long enough for each secondary flasher to complete the period for which it is set. Since all secondary flashers in the system are stopped at least once in each cycle and started together by the Chronolizer, all will remain in definite time-step with respect to each other. If, because of irregularities in construction or setting, some flashers run faster than others, the effects will not be cumulative, since all flashers are put in step at least once in each cycle. If energy is cut off from all or a part of the system for a time, when it is again cut on, all flashers will automatically reset themselves to the predetermined time relation. This is an important feature of the Chronoplan system which is sacrificed in other systems.

By adjustment of the dials on the secondary controls the total time-cycle, as set by the Chronolizer, can be divided between the "Go," "Change," and "Stop" periods to best suit local conditions at each intersection. The periods at each intersection may also be set to begin at any desired time with respect to the periods at other intersections. These adjustments can be made without stopping the flasher, or in any way interfering with the operation of the system. This flexibility allows the system to be adjusted to meet any traffic conditions, favoring intersections where traffic is heavy and wasting no time where traffic is light. This system is exceptionally valuable in any system containing more than a very few signals, and is also being used to advantage in operating systems of only two signals. Complete flexibility makes it readily applicable for unusual traffic conditions.

An Auxiliary Controlled Water Regulator

An auxiliary controlled water regulator which is operated by high pressure on a large diaphragm area by the pressure from the inlet or high-pressure side, has been developed by the Mueller Co., Decatur, Ill. The small auxiliary valve is set to close at the pressure which the customer wants to carry on the low-pressure side of the service. This forces the high pressure into the diaphragm chamber of the main valve, which overcomes the spring tension and forces the main-valve stem to its seat.

A small restricted orifice piece is placed on the auxiliary piping just ahead of the riser pipe which leads to the main-valve diaphragm chamber. This prevents water from entering from the inlet side faster than it will flow out through the auxiliary valve to the lower-pressure service when the water is being used. To adjust this valve to a higher delivery pressure than that for which it has been set when shipped from the factory, it is only necessary to turn in on the small adjusting screw of the auxiliary valve and turn down slightly on the main regulator nut on the main-valve stem. This places more tension on the large springs in the main valve and it also places more tension on the auxiliary-valve spring. Thus, it requires a higher pressure to close the two valves. For a lower delivery pressure, the adjustment is made just the reverse.



THE MUELLER AUXILIARY-OPERATED WATER PRESSURE REDUCING VALVE

These valves are recommended for initial pressures up to 200 pounds on the inlet side and delivery pressure up to 125 pounds on the outlet side. The valves are also made of special materials for higher pressures. It is well to connect the outlet from the auxiliary valve a short distance from the regulator so that a more uniform pressure will be obtained in closing the auxiliary. These valves are made in sizes from 1¼-inch to 12 inches.

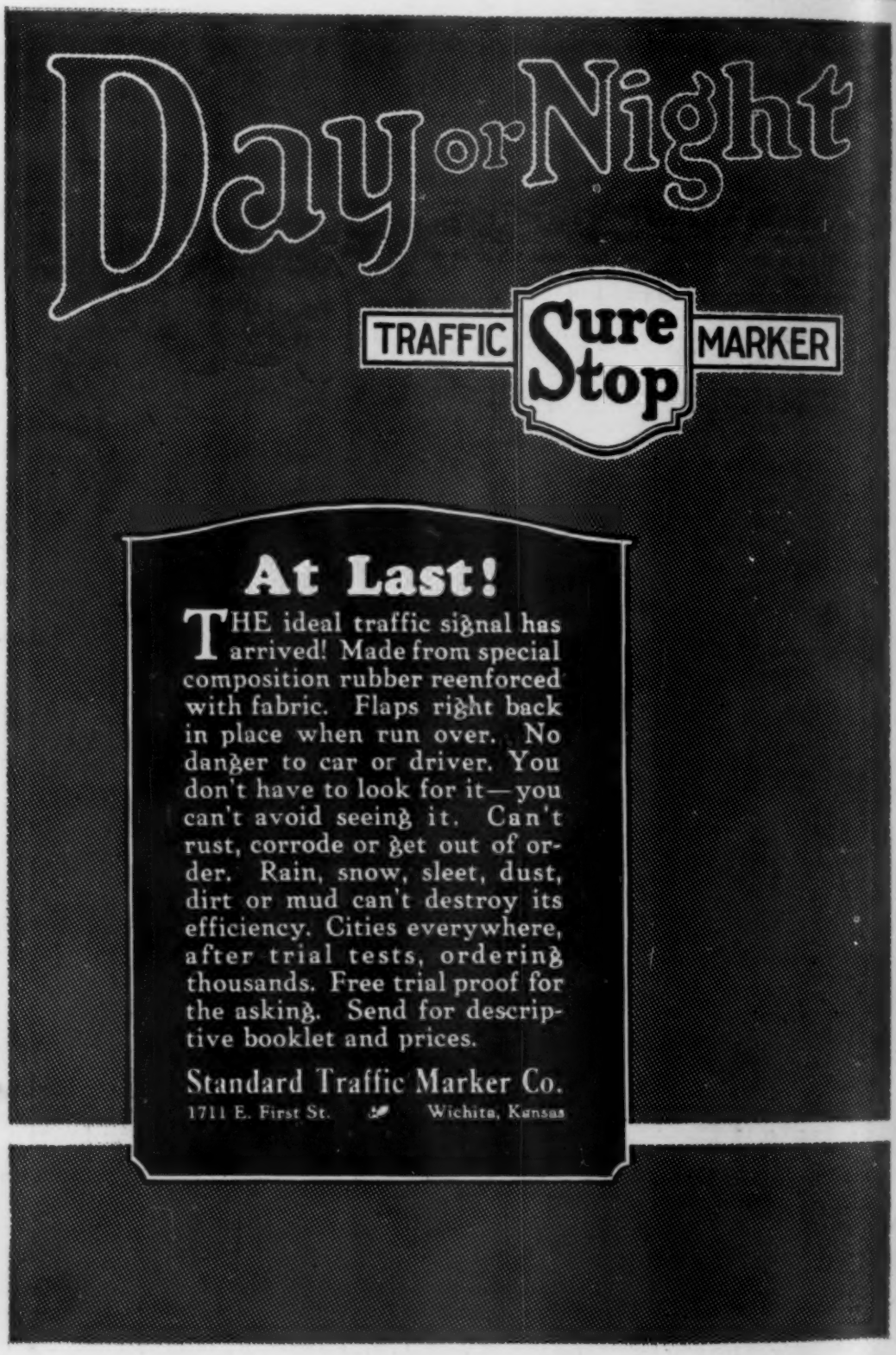
New Foos Officers

At the recent meeting of the Board of Directors of the Foos Gas Engine Co., Springfield, Ohio, the following officers were elected and department assignments made: J. F. Baker, President; M. E. Baker, Secretary-Treasurer; Ray C. Burrus, Sales Manager; W. W. Schettler, Chief Engineer, and George F. Noltein, Mechanical Engineer. The name of the company is being changed to The Foos Engine Co. A new factory branch of the Foos Engine Co. is to be established in Tulsa, Okla., where a large stock of engines and parts will be carried. Garvey & Palmer, Inc., Pacific Coast representatives, have established offices at Los Angeles, San Francisco and Seattle, to take care of both the marine and the stationary fields.

Changes in Trackson Personnel

The Trackson Co., 518 Clinton Street, Milwaukee, Wis., has announced that H. D. Van Doorn, who has been with the Trackson Co. for nearly four years, and who for the last two and one-half years has been Manager of Distribution, is now to work as Assistant Manager under W. H. Stiemke, General Manager. L. E. Dauer, who has been Assistant Sales Manager, will now be Sales Manager in charge of all matters pertaining to domestic sales and to sales representatives.

C. W. O'Connor, Advertising Manager, has resigned to become Sales Manager of a firm composed of his former associates in the leather goods industry.


Day or Night
TRAFFIC
Sure Stop
MARKER
At Last!
THE ideal traffic signal has arrived! Made from special composition rubber reenforced with fabric. Flaps right back in place when run over. No danger to car or driver. You don't have to look for it—you can't avoid seeing it. Can't rust, corrode or get out of order. Rain, snow, sleet, dust, dirt or mud can't destroy its efficiency. Cities everywhere, after trial tests, ordering thousands. Free trial proof for the asking. Send for descriptive booklet and prices.
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